

No. 12540

United States
Court of Appeals

for the Ninth Circuit

See vol 264p
JACUZZI BROS., INCORPORATED, a Corpora-
tion,

Appellant,

vs.

BERKELEY PUMP COMPANY, a Corporation,
BERKELEY PUMP COMPANY, a Partner-
ship, and FRED A. CARPENTER, LANA L.
CARPENTER, F. F. STADELHOFFER,
ESTELLE E. STADELHOFFER, JACK L.
CHAMBERS, WYNNIE T. CHAMBERS,
CLEMENS W. LAUFENBERG and MARIE
C. LAUFENBERG, Partners Associated in
Business Under the Fictitious Name and Style
of Berkeley Pump Company,

Appellees.

Transcript of Record

In Two Volumes

Volume I

(Pages 1 to 493)

Appeal from the United States District Court,
Northern District of California,
Southern Division.

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in *italic*; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in *italic* the two words between which the omission seems to occur.]

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In the District Court of the United States for the
Northern District of California, Southern
Division

No. 27905G

JACUZZI BROS, INCORPORATED, a Corpora-
tion,

Plaintiff,

vs.

BERKELEY PUMP COMPANY, a Corporation,
BERKELEY PUMP COMPANY, a Partner-
ship, and FRED A. CARPENTER, LANA
L. CARPENTER, F. F. STADELHOFFER,
ESTELLE E. STADLEHOFFER, JACK L.
CHAMBERS, WYNNIE T. CHAMBERS,
CLEMENS W. LAUFENBERG and MARIE
C. LAUFENBERG, Partners, Associated in
Business under the Fictitious Name and Style
of BERKELEY PUMP COMPANY,

Defendants.

FOR INFRINGEMENT OF UNITED STATES
LETTERS PATENT Nos. 2,344,958 AND
2,424,285

COMPLAINT

Comes now the plaintiff above-named and, com-
plaining of the defendant above-named, for claims
for relief, alleges:

A. For a First Claim for Relief

I.

That at all times herein mentioned, plaintiff, Jacuzzi Bros., Incorporated, a corporation, has been and now is a corporation duly organized and existing under and by virtue of the laws of the State of California and having its principal place of business in the City of Richmond, County of Contra Costa, in said State;

II.

That at all times herein mentioned, defendant, Berkeley Pump Company, a corporation, has been and now is a corporation duly organized and existing under and by virtue of the laws of the State of California and having its principal place of business in the City of Berkeley, County of Alameda, in said State;

III.

That at all times herein mentioned, defendant, Berkeley Pump Company, a partnership, was and now is a partnership composed of two or more persons associated in the business of manufacturing and selling pumps and pump systems, and doing business under the fictitious name and style of Berkeley Pump Company, at the City of Berkeley, County of Alameda, State of California;

IV.

That at all times herein mentioned, defendants, Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynnie T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, were and now are partners under the name of Berkeley Pump Company, at the City of Berkeley, County of Alameda, State of California, and, as such, engaged in the business of manufacturing and selling pumps and pump systems, and are residents of the County of Alameda, State of California;

V.

That heretofore, to wit: prior to July 15, 1941, John E. Armstrong and Jack E. Piccardo were the original, first and joint inventors of a new and useful invention entitled "Pumping System" and on said last named date filed in the Patent Office of the United States an application for letters patent on said invention;

VI.

That concurrently with the execution of said application, the said John E. Armstrong and Jack E. Piccardo duly executed and delivered to plaintiff, Jacuzzi Bros. Incorporated, a corporation, an assignment in writing of the entire right, title and interest in and to said invention and the application for letters patent thereon and said letters patent, when and if granted, and did request in said

assignment that said letters patent, when and if granted should be issued to said plaintiff, Jacuzzi Bros., Incorporated, a corporation; that said assignment was duly recorded in the United States Patent Office on the 15th day of July, 1941, in Liber K-188, Page 636;

VII.

That thereafter, to wit: on March 28, 1944, after proceedings duly and regularly had and taken in respect to said application, letters patent on said invention, numbered 2,344,958, were duly and legally granted, issued and delivered by the Government of the United States of America to said Jacuzzi Bros., Incorporated, a corporation, whereby there was granted to said Jacuzzi Bros., Incorporated, a corporation, its successors and assigns, for the term of seventeen years from and after March 28, 1944, the sole and exclusive right to make, use and vend the said invention throughout the United States of America and the territories thereof; that a more particular description of said invention patented in and by said letters patent will more fully appear from said letters patent themselves which are ready in Court to be produced by plaintiff;

VIII.

That plaintiff is now, and ever since March 28, 1944, has been the sole owner of the entire right, title and interest in and to said letters patent No. 2,344,958, together with all causes of action for infringement thereof, wherever and by whomsoever

committed, and all profits and damages arising out of such infringement;

IX.

That plaintiff is informed and believes and upon such information and belief alleges that within six years last past and prior to the commencement of this suit and within the Southern Division of the Northern District of California and elsewhere in the United States of America, defendants, Berkeley Pump Company, a corporation, Berkeley Pump Company, a partnership, and Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynnie T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, partners, associated in business under the fictitious name and style of Berkeley Pump Company, have been and still are jointly and severally, directly and/or contributorily, and in conspiracy, infringing said Letters Patent No. 2,344,958, by making, using and selling, and contributing to the making, using and selling of pumps and pumping systems embodying and containing the invention disclosed in and by said letters patent; and that unless enjoined by this Court, said defendants will continue to so infringe said letters patent;

X.

That plaintiff has placed the required statutory notice on all pumps and pump systems manufactured and sold by and for it under said letters

patent, and has given written notice to said defendants of their said infringement;

XI.

That by reason of defendants' said infringement, plaintiff has suffered damages, and defendants have jointly and severally realized gains, profits and advantages, but the exact amount of such damages and/or profits is unknown to plaintiff and can be ascertained only by an accounting;

Wherefore, plaintiff prays judgment etc.

B. For a Second Claim for Relief

I.

Plaintiff repeats and re-alleges, as part of this Second Claim for Relief, each and all of the allegations contained in Paragraphs I, II, III and IV of the First Claim for Relief, and with like effect as if herein fully re-alleged, and incorporates herein all the facts therein set forth;

II.

That heretofore, to wit: prior to May 31, 1941, Jack E. Piccardo and John E. Armstrong were the original, first and joint inventors of a new and useful invention entitled "Pump and Pump System" and on said last named date filed in the Patent Office of the United States an application for letters patent on said invention;

III.

That concurrently with the execution of said application, the said Jack E. Piccardo and John E. Armstrong duly executed and delivered to plaintiff, Jacuzzi Bros., Incorporated, a corporation, an assignment in writing of the entire right, title and interest in and to said invention and the application for letters patent thereon and said letters patent when and if granted, and did request in said assignment that said letters patent, when and if granted, should be issued to plaintiff, Jacuzzi Bros., Incorporated, a corporation; that said assignment was duly recorded in the United States Patent Office on the 31st day of May, 1941, in Liber Y-187, Page 532;

IV.

That thereafter, to wit: on July 22, 1947, after proceedings duly and regularly had and taken in respect to said application, letters patent on said invention, numbered 2,424,285, were duly and legally granted, issued and delivered by the Government of the United States of America to said Jacuzzi Bros., Incorporated, a corporation, whereby there was granted to said Jacuzzi Bros., Incorporated, a corporation, its successors and assigns, for the term of seventeen years from and after July 22, 1947, the sole and exclusive right to make, use and vend the said invention throughout the United States of America and the territories thereof; that a more particular description of said invention patented in and by said letters patent will more fully appear from said let-

ters patent themselves which are ready in Court to be produced by plaintiff;

V.

That plaintiff is now, and ever since July 22, 1947, has been the sole owner of the entire right, title and interest in and to said letters patent No. 2,424,285, together with all causes of action for infringement thereof, wherever and by whomsoever committed, and all profits and damages arising out of such infringement;

VI.

That plaintiff is informed and believes and upon such information and belief alleges that within six years last past and prior to the commencement of this suit and within the Southern Division of the Northern District of California and elsewhere in the United States of America, defendants, Berkeley Pump Company, a corporation, Berkeley Pump Company, a partnership, and Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynnne T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, partners, associated in business under the fictitious name and style of Berkeley Pump Company, have been and still are jointly and severally, directly and/or contributorily, and in conspiracy, infringing said Letters Patent No. 2,424,285, by making, using and selling, and contributing to the making, using and selling of pumps and pumping systems embodying and containing the invention dis-

closed in and by said letters patent; and that unless enjoined by this Court, said defendants will continue to so infringe said letters patent;

VII.

That plaintiff has placed the required statutory notice on all pumps and pump systems manufactured and sold by and for it under said letters patent, and has given written notice to said defendants of their said infringement;

VIII.

That by reason of defendants' said infringement, plaintiff has suffered damages, and defendants have jointly and severally realized gains, profits and advantages, but the exact amount of such damages and/or profits is unknown to plaintiff and can be ascertained only by an accounting;

Wherefore, plaintiff prays judgment:

(a) That said Letters Patent Nos. 2,344,958 and 2,424,285, and each of them, be adjudged valid and that the same have been infringed by said defendants;

(b) That defendants, and each of them, their officers, agents, attorneys, servants, employees, associates and workmen, be enjoined during the pendency of this action and permanently from infringing upon said letters patent, or either of them, and from contributing to or aiding or abetting the infringement of said letters patent, or either of

them, either directly or indirectly, or in any manner whatsoever;

(c) That plaintiff have and recover from defendants all damages which it has sustained and/or all profits realized by defendants, and each of them, by reason of the infringement aforesaid; that said damages be trebled; and that an accounting be decreed for said damages and/or profits;

(d) That plaintiff have and recover from defendants, reasonable attorney fees herein;

(e) That plaintiff be awarded its costs and disbursements in its behalf sustained herein;

(f) That plaintiff have such other and further relief as in equity and good conscience the Court shall deem meet and proper.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff.

Duly verified.

[Endorsed]: Filed February 11, 1948.

[Title of District Court and Cause.]

ANSWER TO COMPLAINT AND COUNTER-
CLAIM FOR DECLARATORY RELIEF
AND INJUNCTION

Come now the defendants above named and, for their answer to the complaint heretofore filed, admit, deny and allege as follows:

Answering the Allegations Contained in the Alleged First Claim for Relief of Plaintiff's Complaint, These Answering Defendants Admit, Deny and Allege as Follows:

I.

Answering Paragraph I of the complaint, defendants are without knowledge or information sufficient to form a belief as to the truth of the averments of said paragraph, and on that ground deny each and every allegation therein contained.

II.

Answering Paragraph II of the complaint, defendants admit the allegations therein contained, and further allege that said Berkeley Pump Company was incorporated on August 1, 1946.

III.

Answering Paragraph III of the complaint, defendants deny that defendant Berkeley Pump Company, a partnership, now is a partnership composed of two or more persons associated in the business

of manufacturing and selling pumps and pump systems, and doing business under the fictitious name and style of Berkeley Pump Company, at the City of Berkeley, County of Alameda, State of California, but on the contrary allege that Berkeley Pump Company, a partnership, was dissolved on or about August 1, 1946.

IV.

Answering Paragraph IV. of the complaint, defendants deny that defendants Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynn timer T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, now are partners under the name of Berkeley Pump Company, at the City of Berkeley, County of Alameda, State of California, and, as such, engaged in the business of manufacturing and selling pumps and pump systems; defendants allege, however, that said defendants were partners under the name of Berkeley Pump Company, at the City of Berkeley, County of Alameda, State of California, up to and about August 1, 1946, and admit that said defendants are residents of the County of Alameda, State of California.

V.

Answering Paragraph V of the complaint, defendants deny that prior to July 15, 1941, or at any other time, John E. Armstrong and Jack E. Piccardo were the original, first and joint inventors, or any inventors of a new and useful invention en-

titled "Pumping System," but admit that on July 15, 1941, the said John E. Armstrong and Jack E. Piccardo did file in the Patent Office of the United States an application for Letters Patent on an alleged invention entitled "Pumping System."

VI.

Answering Paragraph VI of the complaint, defendants are without knowledge or information sufficient to form a belief as to the truth of the averments of said paragraph, and on that ground deny each and every allegation therein contained.

VII.

Answering Paragraph VII of the complaint, defendants admit that on March 28, 1944, Letters Patent of the United States No. 2,344,958 were issued, but except for said admission, defendants deny each and every allegation in said paragraph contained.

VIII.

Answering Paragraph VIII of the complaint, defendants deny each and every allegation therein contained.

IX.

Answering Paragraph IX of the complaint, defendants both generally and specifically deny each and every allegation in said Paragraph IX contained.

X.

Answering Paragraph X of the complaint, defendants admit that plaintiff in writing charged the defendant, Berkeley Pump Company, a corporation, with infringement of said Letters Patent, but except for the matters herein specifically admitted, defendants deny each and every allegation in Paragraph X contained.

XI.

Answering Paragraph XI of the complaint, defendants deny each and every allegation therein contained.

Answering the Allegations Contained in the Alleged Second Claim for Relief of Plaintiff's Complaint, These Answering Defendants Admit, Deny and Allege as Follows:

I.

Defendants repeat, reallege and incorporate herein the same as though specifically set forth all of their admissions, denials and allegations contained in Paragraphs I, II, III and IV of their foregoing answer to the alleged first claim for relief of plaintiff's complaint.

II.

Defendants admit that on or about May 31, 1941, Jack E. Piccardo and John E. Armstrong filed in the United States Patent Office an application for an alleged invention entitled "Pump and Pump

System," but deny that said Jack E. Piccardo and John E. Armstrong were the original, first and joint, or any inventors of a new and useful invention entitled "Pump and Pump System" disclosed in said application for Letters Patent.

III.

Defendants deny each and every allegation in Paragraph III contained of the alleged second claim for relief of plaintiff's complaint.

IV.

Defendants admit that on July 22, 1947, Letters Patent No. 2,424,285 were issued, but except for said admission, defendants deny each and every allegation in said paragraph contained.

V.

Defendants both generally and specifically deny each and every allegation in Paragraph V of the alleged second claim for relief of plaintiff's complaint.

VI.

Defendants both generally and specifically deny each and every allegation in Paragraph VI of the alleged second claim for relief of plaintiff's complaint.

VII.

Defendants admit that plaintiff in writing charged the defendant, Berkeley Pump Company, a corporation, with infringement of said Letters

Patent, but except for the matters herein specifically admitted, defendants deny each and every allegation in Paragraph VII contained.

VIII.

Defendants both generally and specifically deny each and every allegation in Paragraph VIII of the alleged second claim for relief of plaintiff's complaint.

As Further and Separate Defenses Defendants
Allege as Follows:

I.

That defendants are informed and believe and on information and belief allege that said Letters Patent Nos. 2,344,958 and 2,424,285 are invalid in that the things alleged to be described and patented in and by said patents were not inventions and did not require the, or any, exercise of the inventive faculty for their production, and were not patentable, and that, therefore, said alleged patents Nos. 2,344,958 and 2,424,285 are null and void and of no effect.

II.

That defendants are informed and believe and, therefore, on information and belief allege that plaintiff's patents Nos. 2,344,958 and 2,424,285 each and both are invalid because anticipated, in that the alleged invention or inventions attempted to be claimed therein and every material and substan-

tial part thereof is or are disclosed and described in prior Letters Patent of the United States and foreign countries, or in printed publications prior to the alleged invention, inventions, discovery or discoveries of the alleged patentees named in said patents Nos. 2,344,958 and 2,424,285.

III.

That defendants are informed and believe and on information and belief allege that said patents Nos. 2,344,958 and 2,424,285 are invalid in that the things alleged to be described and patented in and by said patents are inoperative.

IV.

That defendants are informed and believe and on information and belief allege that said patents Nos. 2,344,958 and 2,424,285 are invalid in that the things purportedly patented thereby are not distinctly pointed out, described and claimed, as required by the statutes of the United States.

V.

That defendants are informed and believe and on information and belief allege that said patents Nos. 2,344,958 and 2,424,285 are invalid, particularly as to the claims thereof, in that said claims are vague, ambiguous and do not define or distinctly claim the alleged invention, as required by the statutes of the United States.

VI.

That defendants are informed and believe and on information and belief allege that said patents Nos. 2,344,958 and 2,424,285 are null and void and of no effect because of double patenting.

VII.

That defendants are informed and believe and on information and belief allege that the persons named as the inventors in said Letters Patent Nos. 2,344,958 and 2,424,285 are not the first, or any, inventors of the things disclosed in said Letters Patent and that, therefore, said Letters Patent are invalid.

VIII.

That defendants are informed and believe and on information and belief allege that the persons named as joint inventors in said Letters Patent Nos. 2,344,958 and 2,424,285 were, in fact, not the joint, or any, inventors of the things disclosed in said Letters Patent and that, therefore, said Letters Patent are void and invalid.

IX.

That defendants are informed and believe and on information and belief allege that the plaintiff is estopped by the proceedings in the United States Patent Office in the matter of the applications of the applicants for said Letters Patent Nos. 2,344,958 and 2,424,285, and the acquiescence of said applicants in and to the rulings and rejections of the

Commissioner of Patents in the negotiations for said Letters Patent, and in and by the limitations imposed thereby during the negotiations in the United States Patent Office leading up to the grant and issuance of said Letters Patent, from claiming any scope or subject matter of said alleged Letters Patent, or any of the claims thereof, as would comprehend or embrace any apparatus or devices manufactured, sold or used by these defendants.

X.

That defendants are informed and believe and that, therefore, on information and belief allege that they have not committed any act of infringement of said Letters Patent Nos. 2,344,958 and 2,424,285 or any of the claims thereof.

XI.

That defendants are informed and believe and, therefore, on information and belief allege that the pumps, pumping apparatus and pumping systems heretofore manufactured, sold or used by defendants do not infringe said patents Nos. 2,344,958 and 2,424,285 or any of the claims thereof.

COUNTERCLAIM FOR DECLARATORY RELIEF AND INJUNCTION

Comes now the defendant and counter claimant, Berkeley Pump Company, a corporation, and for cause of action for declaratory relief and injunction alleges:

A-I.

That counterclaimant, Berkeley Pump Company, is a corporation duly organized and existing under the laws of the State of California, and has a place of business at Berkeley, County of *Los Angeles*, State of California, and within the Northern District of California, Southern Division.

A-II.

That counterclaimant, Berkeley Pump Company, is informed by the pleadings in this cause of action, and for the purpose of this counterclaim alleges, counter-defendant Jacuzzi Bros. Incorporated, is a corporation duly organized and existing under and by virtue of the laws of the State of California, having its principal place of business at Richmond, County of Contra Costa, in said State, within the Northern District of California, Southern Division.

A-III.

That the jurisdiction of this Court depends upon the Patent Laws of the United States because this complaint is founded upon the Patent Laws of the United States concerning the validity of Letters patent of the United States, and the question of their infringement by counterclaimant. Jurisdiction is also conferred by Section 274D of the Judicial Code (Federal Declaratory Judgments Act, Title 28, Section 400 U. S. C.)

A-IV.

That it appears from the records of the United States Patent Office that on the 28th day of March, 1944, Letters Patent of the United States No. 2,344,958 were granted and issued to the counter-defendant, Jacuzzi Bros., Incorporated, and that said counter-defendant has been and now is vested with the legal title to said Letters Patent. Defendant-counterclaimant hereby makes profert of a certified copy of said Letters Patent of the United States.

A-V.

That it appears from the records of the United States Patent Office that on the 22nd day of July, 1947, Letters Patent of the United States No. 2,424,285 were granted and issued to the counter-defendant, Jacuzzi Bros., Incorporated, and that said counter-defendant has been and now is vested with the legal title to said Letters Patent. Defendant-counterclaimant hereby makes profert of a certified copy of said Letters Patent of the United States.

A-VI.

That counterclaimant, Berkeley Pump Company, and its direct predecessors in interest have been for many years and now is engaged in the business of designing, manufacturing and selling pumps and pumping systems, and that prior hereto, at great expense, designed and developed pumps and pumping appartaus and pumping systems; that counter-

claimant has heretofore spent large sums of money in producing said pumps, pumping apparatus and pumping systems in commercial quantities and now has a substantial investment therein and intends to continue to manufacture the same in large and constantly increasing quantities and is now so engaged; that counterclaimant has built a large and profitable business in the manufacture and sale of such pumps, pumping systems and pumping apparatus and a valuable good-will in connection therewith, which business is constantly increasing; that counterclaimant further alleges that its ability to continue to manufacture said pumps, pumping systems and pumping apparatus commercially and sell the same is of great importance to counterclaimant and to the trade.

A-VII.

That counter-defendant, Jacuzzi Bros., Incorporated, has at all times held out to the public, and is now so holding out, that said United States Letters Patent Nos. 2,344,958 and 2,424,285 are valid and of a scope of sufficient breadth to include pumps, pumping systems and pumping apparatus such as manufactured and sold commercially by this counterclaimant as aforesaid.

A-VIII.

That due to this holding out of the aforesaid patents to the public as being valid and of a scope sufficient to include pumps, pumping systems and pumping apparatus such as commercially produced

and sold by counterclaimant, counterclaimant is informed and believe and on information and belief alleges that many of its customers and prospective customers will refuse to purchase and use counterclaimant's said pumps, pumping systems and pumping apparatus because of a fear that an action for infringement of the aforesaid patents may be brought against them; that, therefore, the existence of said patents and the holding out thereof as being valid and as of a scope as aforesaid, has been and will continue to constitute a restraint on counterclaimant's business, all to counterclaimant's damage.

A-IX.

That the existence of an opposing claim based upon the aforesaid Letters Patent of the United States against counterclaimant disturbs the peace and freedom of counterclaimant in its business in connection with pumps, pumping systems and pumping apparatus, and places counterclaimant in a position of uncertainty and doubt as to its legal position with respect to said patents, and impairs or jeopardizes its pecuniary interests in its business.

A-X.

Counterclaimant is informed and believes and, therefore, on information and belief alleges that and prospective customers of counterclaimant that incorporated, has been and now is advising customers and prospective customers of counter-claimant that the pumps, pumping systems and pumping apparatus manufactured and sold and offered for sale by

counterclaimant constitutes an infringement of the aforesaid Letters Patent owned by Jacuzzi Bros., Incorporated; and that because of such advising of said customers and prospective customers that they will refuse to purchase and use counterclaimant's pumps, pumping systems and pumping apparatus, all to the damage of counterclaimant's business and its good-will, and counterclaimant is informed and believes and on information and belief alleges that plaintiff-counter-defendant will continue so to do unless restrained by this Court.

A-XI.

Counterclaimant is informed and believes and, therefore, on information and belief alleges that the plaintiff-counter-defendant, Jacuzzi Bros., Incorporated, has and now is advising customers of counterclaimant for counterclaimant's pumps, pumping systems and pumping apparatus, that if such customers or prospective customers purchase and use counterclaimant's pumps, pumping apparatus and pumping systems, they will be liable for infringement of the aforesaid Letters Patent owned by plaintiff-counter-defendant, Jacuzzi Bros., Incorporated, all to the damage of counterclaimant's business and good-will, and counterclaimant is informed and believes and on information and belief alleges that plaintiff-counter-defendant will continue so to do unless restrained by this Court.

A-XII.

Counterclaimant is informed and believes and on information and belief alleges that said plaintiff and counter-defendant, through its agents, salesmen or dealers, will circularize and notify the customers and prospective customers and those interested in purchasing pumps, pumping system and pumping apparatus of a character manufactured and sold by counterclaimant that such pumps, pumping systems and pumping apparatus constitute an infringement of plaintiff-counter-defendant's patents, aforesaid, and that anyone purchasing such pumps, pumping systems and pumping apparatus of counterclaimant will be liable for suit for infringement under the aforesaid patents, all to the damage of counterclaimant's business and good-will, and counterclaimant is informed and believes and on information and belief alleges that plaintiff-counter-defendant will continue so to do unless restrained by this Court.

A-XIII.

Counterclaimant is informed and believes and on information and belief alleges that said Letters Patent Nos. 2,344,958 and 2,424,285 are invalid in that the things alleged to be described and patented in and by said patents were not inventions and did not require the, or any, exercise of the inventive faculty for their production, and were not patentable, and that, therefore, said alleged patents Nos. 2,344,958 and 2,424,285 are null and void and of no effect.

A-XIV.

Counterclaimant is informed and believes and, therefore on information and belief alleges that plaintiff-counter-defendant's patents Nos. 2,344,958 and 2,424,285 each and both are invalid because anticipated, in that the alleged invention or inventions attempted to be claimed therein and every material and substantial part thereof is or are disclosed and described in prior Letters Patent of the United States and foreign countries, or in printed publications prior to the alleged invention, inventions, discovery or discoveries of the alleged patentees named in said patents Nos. 2,344,958 and 2,424,285.

A-XV.

That counterclaimant is informed and believes and on information and belief alleges that said patents Nos. 2,344,958 and 2,424,285 are invalid in that the things alleged to be described and patented in and by said patents are inoperative.

A-XVI.

That counterclaimant is informed and believes and on information and belief alleges that said patents Nos. 2,344,958 and 2,424,285 are invalid in that the things purportedly patented thereby are not distinctly pointed out, described and claimed, as required by the statutes of the United States.

A-XVII.

That counterclaimant is informed and believes and on information and belief alleges that said patents Nos. 2,344,958 and 2,424,285 are invalid, particularly as to the claims thereof, in that said claims are vague, ambiguous and do not define or distinctly claim the alleged invention, as required by the statutes of the United States.

A-XVIII.

That counterclaimant is informed and believes and on information and belief alleges that said patents Nos. 2,344,958 and 2,424,285 are null and void and of no effect because of double patenting.

A-XIX.

That counterclaimant is informed and believes and on information and belief alleges that the persons named as the inventors in said Letters Patent Nos. 2,344,958 and 2,424,285 are not the first, or any, inventors of the things disclosed in said Letters Patent and that, therefore, said Letters Patent are invalid.

A-XX.

That counterclaimant is informed and believes and on information and belief alleges that the persons named as joint inventors in said Letters Patent Nos. 2,344,958 and 2,424,285 were, in fact, not the joint, or any, inventors of the things disclosed in said Letters Patent and that, therefore, said Letters Patent are void and invalid.

A-XXI.

That counterclaimant is informed and believes and on information and belief alleges that the plaintiff? counter-defendant is estopped by the proceedings in the United States Patent Office in the matter of the applications of the applicants for said Letters Patent Nos. 2,344,958 and 2,424,285, and the acquiescence of said applicants in and to the rulings and rejections of the Commisioner of Patents in the negotiations for said Letters Patent, and in and by the limitations imposed thereby during the negotiations in the United States Patent Office leading up to the grant and issuance of said Letters Patent, from claiming any scope or subject matter of said alleged Letters Patent, or any of the claims thereof, as would comprehend or embrace any apparatus or devices manufactured, sold or used by this counterclaimant.

A-XXII.

That counterclaimant is informed and believes and that, therefore, on information and belief alleges that it has not committed any act of infringement of said Letters Patent Nos. 2,344,958 and 2,424,285 or any of the claims thereof.

A-XXIII.

That counterclaimant is informed and believes and, therefore, on information and belief alleges that the pumps, pumping apparatus and pumping systems heretofore manufactured, sold or used by

counterclaimant do not infringe said patents Nos. 2,344,958 and 2,424,285 or any of the claims thereof.

Wherefore Defendants and Defendant-Counterclaimant Pray:

1. For a judgment dismissing the complaint herein.

2. For a declaratory decree declaring each of said Letters Patent Nos. 2,344,958 and 2,424,285, and each of the claims thereof, to be invalid and void in law.

3. For a declaratory decree declaring that said Letters Patent Nos. 2,344,958 and 2,424,285 are not infringed by defendants and defendant-counterclaimant because of the manufacture, sale or use of defendants' and defendant-counterclaimant's pumps, pumping apparatus and pumping systems manufactured, sold and used by defendants and defendant-counterclaimant.

4. For a preliminary injunction enjoining the plaintiff, its associates, partners, attorneys, clerks, servants, agents, employees and confederates, and all in privity with them, and each of them, from threatening any of defendant-counterclaimant's customers or dealers, or any present or prospective customers, sellers, dealers or users of defendant-counterclaimant's pumps, pumping systems and pumping apparatus, with infringement litigation because of their buying, selling or using defendant-counterclaimant's pumps, pumping systems or pumping apparatus, or advising or charging any of

such customers, present or prospective, dealers or users, either verbally or in writing, with or notifying them of infringement of Letters Patent Nos. 2,344,958 and 2,424,285 if they should sell or offer for sale or use defendant-counterclaimant's pumps, pumping systems or apparatus, and pending the determination of this suit be restrained or enjoined from commencing in this or in any other Court against any of defendant-counterclaimant's customers, sellers or dealers, or any prospective customers, sellers or dealers of defendants and defendant-counterclaimant, any suit for alleged infringement of Letters Patent here in suit, to-wit, Nos. 2,344,958 and 2,424,285, because of the selling, using or offering for sale of defendants' or defendant-counterclaimant's pumps, pumping apparatus or pumping systems.

5. For a permanent injunction of the same purport and tenor as the preliminary injunction herein prayed for.

6. For a judgment for damages against the plaintiff and in favor of the defendant-counterclaimant in the amount of Twenty-five Thousand Dollars (\$25,000.00) for the wilful and unlawful interference with defendant-counterclaimant's business.

7. That defendants and defendant-counterclaimant be awarded reasonable attorneys' fees in this suit.

8. That defendants and defendant-counterclaimant have their costs and disbursements herein.

9. That defendants and defendant-counterclaim-

ant have such other, further or different relief as the Court may deem appropriate in the premises.

Dated: This 2nd day of March, 1948.

MELLIN AND HANSCOM,

By /s/ OSCAR A. MELLIN.

Attorneys for Defendants and Defendant-Counter-claimant.

Proof of Service attached.

[Endorsed]: Filed March 3, 1948.

[Title of District Court and Cause.]

ANSWER TO COUNTERCLAIM

Comes now the plaintiff-counterdefendant in the above entitled action and, for answer to the counterclaim filed herein by defendant-counterclaimant, Berkeley Pump Company, admits, denies and alleges as follows:

I.

Admits the averments contained in Paragraphs A-I, A-II, A-III, A-IV and A-V of said counterclaim;

II.

Answering Paragraph A-VI of said counterclaim, admits that defendant-counterclaimant, Berkeley Pump Company, and its direct predecessors in in-

terest, have been for many years and now is engaged in the business of designing, manufacturing and selling pumps and pumping systems; alleges that it is without knowledge or information sufficient to form a belief as to the truth of the other averments of said paragraph and, therefore, denies each and every such other averment;

III.

Answering Paragraph A-VII of said counterclaim, admits that plaintiff-counterdefendant has at all times held out to the public, and is now so holding out, that said United States patents 2,344,958 and 2,424,285 are valid; but denies each and every other averment of said paragraph;

IV.

Answering Paragraphs A-VIII and A-IX of said counterclaim, admits that plaintiff-counterdefendant claims and asserts the existence and validity of its said patents and each of them; denies that it is now making or has ever made any other representations or claims concerning said letters patent or the scope thereof, save only to the defendants in this action and by the mere filing of the original complaint herein; denies that any holding out to the public by plaintiff-counterdefendant of the existence of said letters patent or the validity thereof, or of the mere filing of the original complaint herein, have had any effect upon the business of defendant-counterclaimant or upon its customers or prospective customers, other than the effect of the existence

of said patents and plaintiff-counterdefendant's claim of the validity thereof, and of the filing of the original complaint herein;

V.

Answering Paragraphs A-X, A-XI and A-XII of said counterclaim, denies each and every averment therein contained;

VI.

Answering Paragraphs A-XIII through A-XXIII of said counterclaim, denies each and every averment in said paragraphs contained, and in particular denies each and every said averment with respect to each said patent 2,344,958 and 2,424,285;

Wherefore, plaintiff-counterdefendant prays:

1. For a judgment dismissing the counterclaim herein;

2. For a judgment in accordance with the prayer of plaintiff-counterdefendant's original complaint herein;

3. For such other, further and general relief as the Court may deem appropriate in the premises.

Dated: April 26, 1948.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff-
counterdefendant.

Proof of Service attached.

[Endorsed]: Filed April 27, 1948.

[Title of District Court and Cause.]

DEFENDANTS' ANSWER TO PLAINTIFF'S
ORAL INTERROGATORY

Come now defendants above named, through their attorneys, and state that the following patents are those which defendants, as now advised, will rely upon at the trial of this cause, among other things, to sustain the defenses of invalidity and noninfringement of the above-entitled cause:

United States Patents

Burks	1,856,537	1932
Rateau	1,038,201	1912
Jacuzzi	1,758,400	1930
Anderson	1,771,988	1930
Berman et al.	2,133,269	1938
Carpenter	2,212,010	1940
Fuller	2,303,627	1942
Stuck	1,410,228	1922
Sulzer	704,144	1902
Rateau	730,842	1903
Goeriz	933,247	1909
Alberger	1,009,819	1911
Schneider	1,126,300	1915
Manzel	1,665,670	1928
Skidmore	1,714,735	1929
Crosthwait	1,893,883	1933

Waseige	2,092,565	1937
Bigelow et al.	2,108,786	1938
Spillmann	2,271,352	1942
Stepanoff	2,248,312	1941
Jacuzzi	2,205,121	1940
Jacuzzi	2,150,799	1939
Ensslin	1,494,595	1924
Hilliard	1,059,994	1913
Spencer	893,756	1908
Carpenter	2,280,626	1942
Fuller	2,286,613	1942
Rhoda	2,315,656	1943

Foreign Patents

Speck (German)	376,684	1923
Italian	260,417	1928
German	439,076	1927
British	382,592	1932

MELLIN AND HANSCOM,

By /s/ OSCAR A. MELLIN,

Attorney for Defendants,

June 3, 1948.

Proof of Service attached.

[Endorsed]: Filed June 4, 1948.

[Title of District Court and Cause.]

PLAINTIFF'S INTERROGATORIES AND
ANSWERS TO PLAINTIFF'S INTER-
ROGATORIES

SECTION A

Comes now the plaintiff, Jacuzzi Bros., Incorporated, a corporation, and pursuant to Rule 33 of the Rules of Civil Procedure, requires the following interrogatories under Section A hereof to be answered by the defendants or an officer of the corporate defendant, having knowledge thereof, and under Section B hereof, by the defendant-counterclaimant, Berkeley Pump Company, a corporation, by an officer thereof having knowledge of the facts.

Plaintiff's Interrogatory No. 1

Did the defendant, or any, or all of them, subsequent to March 28, 1944, and prior to July 22, 1947, and/or subsequent to July 22, 1947, and prior to the commencement of this suit, make, use and/or sell within the Northern District of California, any pump system, or pump structure, substantially the same in construction, mode of operation and function as that disclosed and described in the page of the bulletin, a photostatic copy of which page is hereunto annexed and marked Exhibit "A"?

Answer to Plaintiff's Interrogatory No. 1

In answer to Interrogatory 1, the defendants Berkeley Pump Company, a co-partnership, and

Berkeley Pump Company, a corporation, did, prior to the commencement of the present action and subsequent to March 28, 1944, make and sell, within the Northern District of California, a pumping system substantially the same in construction, mode of operation and function as that disclosed and described in the page of the bulletin, a photostatic copy of which page was annexed to "Plaintiff's Interrogatories" and marked "Exhibit A."

Plaintiff's Interrogatory No. 2

If bulletin, Exhibit "A," does not show, disclose and/or describe in a substantially correct manner the construction, mode of operation and function of the pump system or pump structure, so manufactured, used and/or sold by said defendants, or any, or all of them, subsequent to March 28, 1944, and prior to July 22, 1947, and/or subsequent to July 22, 1947, and prior to the commencement of this suit, please point out, describe and indicate in detail wherein said Exhibit "A" does not show, disclose and describe in a substantially correct manner such pump system or pump structure, so manufactured, used and/or sold by said defendants, or any of them, within said periods within the Northern District of California.

Answer to Plaintiff's Interrogatory No. 2

No answer to this interrogatory is required in view of the answer to Interrogatory 1.

Plaintiff's Interrogatory No. 3

Did the defendants, or any, or all of them, subsequent to July 22, 1947, and prior to the commencement of this suit, make, use and/or sell within the Northern District of California, any pump system or pump structure substantially the same in construction, mode of operation and function as that disclosed in the figure identified by the written letter C in the circular, a photostatic copy of which is annexed hereto and marked Exhibit "B."

Answer to Plaintiff's Interrogatory No. 3

Defendant Berkeley Pump Company, a corporation, did subsequent to July 22, 1947, and prior to the commencement of this suit, make and sell, within the Northern District of California, a pumping system substantially the same in construction, mode of operation and function as that disclosed in the figure identified by the written letter C in the circular, a photostatic copy of which page was annexed to "Plaintiff's Interrogatories" and marked "Exhibit B."

Plaintiff's Interrogatory No. 4

If your answer to the preceding question is in the affirmative, state in detail the exact nature and character of said pump system or structure, and provide us with a drawing or drawings thereof illustrating in detail the character and type of such pump system or structure.

Answer to Plaintiff's Interrogatory No. 4

In answer to Interrogatory 4, a detailed description and illustration of the nature and character of the said pumping system referred to in answer to Interrogatory 3, is attached hereto and labeled "Defendants' Exhibit 1."

Plaintiff's Interrogatory No. 5

If the circular, Exhibit "B," does not show or disclose in a substantially correct manner the construction, mode of operation and function of such pump system or structure so manufactured, used, and/or sold by defendants, or any, or all of them, subsequent to July 22, 1947, and prior to the commencement of this suit, point out, describe and indicate in detail wherein said circular does not show and disclose in a substantially correct manner such pump system or structure so manufactured, used and/or sold by defendants, or any of them, within said period within the Northern District of California.

Answer to Plaintiff's Interrogatory No. 5

In view of the answer to Interrogatory 4, no answer is necessary to this interrogatory.

Plaintiff's Interrogatory No. 6 (a)

Referring to Paragraph I, Page 6 of defendants' answer, please state in detail with respect to each said Letters Patent Nos. 2,344,958 and 2,424,285:

(a) The facts upon which defendants will rely

to establish that the thing described and patented therein did not require the exercise and inventive faculty for its production, and

Answer to Plaintiff's Interrogatory No. 6 (a)

6. (a) In answer to Interrogatory 6 (a), as now advised defendants will rely upon the disclosures of all of those United States and foreign patents identified in "Defendants' Answer to Plaintiff's Oral Interrogatory" on file herein, the two patents in suit, and testimony to be subsequently adduced by deposition and at the trial of this cause.

Plaintiff's Interrogatory No. 6 (b)

6. (b) Identify any and all documentary evidence upon which you will rely in the establishment of such facts.

Answer to Plaintiff's Interrogatory No. 6 (b)

6. (b) In answer to Interrogatory 6 (b), as presently advised, defendants will rely upon all of those United States and foreign patents set forth in "Defendants' Answer to Plaintiff's Oral Interrogatory" heretofore on file herein, together with such other documentary evidence not presently known to defendants which may be adduced upon the taking of deposition and upon the taking of testimony at the trial of this cause.

Plaintiff's Interrogatory No. 7 (a)

7. Referring to Paragraph II, Pages 6 and 7 of defendants' answer:

(a) Identify the publications, if any, upon which defendants will rely to establish anticipation of each said Letters Patent Nos. 2,344,958 and 2,424,285, and state the date and page numbers thereof and at least one place where each of said publications may be inspected in the United States;

Answer to Plaintiff's Interrogatory No. 7 (a)

7. (a) In answer to Interrogatory 7 (a), as presently advised, the publications will consist of those United States and foreign patents identified in "Defendants' Answer to Plaintiff's Oral Interrogatory," and certain other publications not presently known to defendants which may be produced upon the taking of depositions and the testimony at the trial of this cause.

Plaintiff's Interrogatory No. 7 (b)

7. (b) Identify which of said publications, if any, will be relied upon to show the state of the art;

Answer to Plaintiff's Interrogatory No. 7 (b)

7. (b) In answer to Interrogatory 7 (b), the answer is the same as that given for Interrogatory 7 (a).

Plaintiff's Interrogatory No. 7 (c)

7. (c) Which of said publications, if any, will

be relied upon for any other purpose, and, if relied upon, for what other purpose?

Answer to Plaintiff's Interrogatory No. 7 (c)

7. (c) In answer to Interrogatory 7 (c), the answer is the same as that given for Interrogatory 7 (a).

Plaintiff's Interrogatory No. 8 (a)

8. Of the many domestic and foreign patents which defendants intend to rely upon at the trial to support their defenses of invalidity and non-infringement of said Letters Patent Nos. 2,344,958 and 2,424,285, please state:

8. (a) Which of said domestic and foreign patents defendants assert anticipate the claims of each said letters patent in suit?

Answer to Plaintiff's Interrogatory No. 8 (a)

8. (a) In answer to Interrogatory 8 (a), as presently advised, defendants will rely at the trial to support their defenses of invalidity and non-infringement upon all of those United States and foreign patents identified in "Defendants' Answer to Plaintiff's Oral Interrogatory."

Plaintiff's Interrogatory No. 8 (b)

8. (b) Which of said domestic and foreign patents defendants will rely upon to show the state of the art?

Answer to Plaintiff's Interrogatory No. 8 (b)

8. (b) In answer to Interrogatory 8 (b), the answer is the same as that given for Interrogatory 8 (a).

Plaintiff's Interrogatory No. 8 (c)

8. (c) Which of said domestic and foreign patents defendants will rely upon for any other purpose, and, if relied upon, for what other purpose?

Answer to Plaintiff's Interrogatory No. 8 (c)

8. (c) In answer to Interrogatory 8 (c), the answer is the same as that given for Interrogatory 8 (a), and defendants further state that said patents will be relied upon for all purposes.

Plaintiff's Interrogatory No. 9

9. Referring to Paragraph III, Page 7 of defendants' answer, state precisely wherein and in what respects the things patented in and by said letters patent, and each of them, were inoperative.

Answer to Plaintiff's Interrogatory No. 9

9. In answer to Interrogatory 9, defendants state that the things patented in and by said Letters Patent, and each of them, are inoperative in all respects set forth in said Letters Patent.

Plaintiff's Interrogatory No. 10

Referring to Paragraph IV, Page 7 of defendants' answer, state precisely wherein and in what

respects the things patented in or by said letters patent, and each of them, is not distinctly pointed out or described or claimed therein, as required by the Statutes of the United States.

Answer to Plaintiff's Interrogatory No. 10

10. In answer to Interrogatory 10, defendants state that the patents in suit themselves do not distinctly point out or describe or claim the alleged inventions, as required by the statutes of the United States.

Plaintiff's Interrogatory No. 11

11. Referring to Paragraph V, Page 7 of defendants' answer, state precisely wherein and in what respects the claims of said letters patent, and each of them, are vague, ambiguous or do not define or distinctly claim the invention, as required by the Statutes of the United States.

Answer to Plaintiff's Interrogatory No. 11

11. In answer to Interrogatory 11, defendants state that the claims of the Letters Patent themselves in all respects are vague, ambiguous and do not define or distinctly claim the alleged inventions as required by the statutes of the United States.

Plaintiff's Interrogatory No. 12

12. Referring to Paragraph VI, Page 7 of defendants' answer, state what patent and which claims thereof will be relied upon by defendants to

establish double patenting with respect to each said letters patent.

Answer to Plaintiff's Interrogatory No. 12

12. In answer to Interrogatory 12, defendants state that each patent and each of the claims thereof, and all prior patents and all of the claims thereof now owned by this plaintiff and so within the knowledge of this plaintiff, will be relied upon by defendants to establish double patenting with respect to each of said Letters Patent in suit and each claim thereof.

Plaintiff's Interrogatory No. 13

13. Referring to Paragraph VII, Page 8 of defendants' answer:

13. (a) State specifically the facts upon which defendants will rely to establish that the patentees of said letters patent, and each of them, were not the first, or any, inventors of the things respectively disclosed therein.

Answer to Plaintiff's Interrogatory No. 13 (a)

13. (a) In answer to Interrogatory 13 (a), as presently advised, defendants will rely upon the state of the art and each of the prior patents identified in "Defendants' Answer to Plaintiff's Oral Interrogatory," among other things, to establish that the patentees of each of the patents in suit were not the first, or any, inventors of the things respectively disclosed therein.

Plaintiff's Interrogatory No. 13 (b)

13. (b) State by specific description of structure or illustrate by drawing and description the particular pump system or apparatus, if any, which defendants will contend upon trial, constitutes prior invention by another party or parties, of the invention patented by the patentees of said letters patent.

Answer to Plaintiff's Interrogatory No. 13 (b)

13. (b) In answer to Interrogatory 13 (b), defendants state that as presently advised the specific description of the structures which defendants will contend upon the trial constitutes prior invention by another party or parties of the invention patented by said Letters Patent are those disclosed in each and every of the prior United States and foreign patents set forth in "Defendants' Answer to Plaintiff's Oral Interrogatory."

Plaintiff's Interrogatory No. 13 (c)

13. (c) State, as to each pump system or apparatus referred to in the foregoing sub-paragraph (b), the name or names and residences of the alleged prior inventors, and the names and residences of witnesses by whose testimony it is intended to prove prior inventions, or prior knowledge, and/or prior uses, if any.

Answer to Plaintiff's Interrogatory No. 13 (c)

13. (c) In answer to Interrogatory 13 (c), defendants state that as presently advised the name

or names and residences of the alleged prior inventors, and the names and residences of witnesses by whose testimony it is intended to prove prior inventions, or prior knowledge, and/or prior uses, if any, as presently advised, are the patentees of the United States patents and foreign patents set forth in "Defendants' Answer to Plaintiff's Oral Interrogatory" on file herein and residing at the places set forth in said patents.

Plaintiff's Interrogatory No. 14

14. Referring to Paragraph VIII, Page 8 of defendant's answer, state the facts specifically upon which defendants will rely to establish their claim that the patentees of said letters patent were not the joint inventors of the things disclosed in said letters patent.

Answer to Plaintiff's Interrogatory No. 14

14. In answer to Interrogatory 14, the facts specifically upon which defendants will rely to establish their claim that the patentees of the Letters Patent were not the joint inventors of the things disclosed in said Letters Patent are that said patentees did not jointly contribute to said inventions and were not joint inventors of the things disclosed in said Letters Patent.

Plaintiff's Interrogatory No. 15

15. Referring to Paragraph IX, Pages 8 and 9 of defendants' answer, state precisely what rulings

or rejections of the Patent Office, involving the respective applications of the applicants for said letters patent, were acquiesced in by said applicants, which estops plaintiff from claiming any scope or subject matter of said letters patent, or the claims thereof, as comprehends or embraces any apparatus or devices manufactured or sold or used by defendants.

Answer to Plaintiff's Interrogatory No. 15

15. In answer to Interrogatory 15, all of the rulings and rejections of the Patent Office involving the respective applications of the applicants for said Letters Patent which were acquiesced in by said applicants, are relied upon by defendants to estop plaintiff from claiming any scope or subject matter of said Letters Patent, or the claims thereof, as comprehends or embraces any apparatus or devices manufactured or sold or used by defendants, of all of which rulings or rejections plaintiff has full knowledge.

Plaintiff's Interrogatories No. 16

16. As to each patent upon which you intend to rely in support of any defense of prior invention, and which issued within one year prior to the respective application filing dates of plaintiff's patents Nos. 2,344,958 and 2,424,285 here in suit, or which issued subsequent to said filing dates, please state:

16(a) When the alleged inventor first conceived the invention therein described and claimed;

(b) When the alleged inventor first made a drawing illustrating his alleged invention;

(c) If such a drawing was made, attach a copy or photostat thereof to your answer;

(d) When the alleged inventor first disclosed his alleged invention to others, and to whom was such disclosure made;

(e) When the alleged inventor first made a written description of his alleged invention;

(f) If such a written description was made, attach a copy or photostat thereof to your answer;

(g) When did the alleged inventor first make or have made a device embodying his alleged invention;

(h) If the alleged inventor made or had made such a device, where can it be inspected by plaintiff;

(i) Describe in detail the construction, interrelation of parts and mode of operation of such device and attach to your answer a drawing illustrating the construction thereof;

(j) Where was such device used and how long was it used;

(k) When did said alleged inventor or any one authorized by him first sell or cause to be sold such a device, and where and to whom was such sale made.

Answer to Plaintiff's Interrogatory No. 16

16. In answer to Interrogatory 16, defendants do not at this time have the information requested by subdivisions (a) to (k) of said interrogatory, and, therefore, are unable to answer such interrogatory.

SECTION B

Plaintiff's Interrogatory 1

1. With respect to Paragraph A-X of the counter-claim herein of defendant-counterclaimant, Berkeley Pump Company, a corporation, state specifically, by name and address, which of defendant-counterclaimant's customers and prospective customers have been advised by plaintiff-counter defendant that pumps, pumping systems or pumping apparatus manufactured or sold or offered for sale by defendant-counterclaimant, constitutes an infringement of Letters Patent Nos. 2,344,958 and 2,424,285, and—

(a) Who, on behalf of plaintiff-counterdefendant, gave any such advice, and to whom;

SECTION B

Answer to Plaintiff's Interrogatories 1

1. In answer to Interrogatory 1, defendant, Berkeley Pump Company, a corporation, does not at this time have the name and address of the particular defendant-counterclaimant's customers and

prospective customers which have been advised by plaintiff-counterdefendant that the pumping systems or pumping apparatus manufactured or sold or offered for sale by defendant-counterclaimant constitutes an infringement of Letters Patent Nos. 2,344,958 and 2,424,285.

1 (a) In answer to Interrogatory 1 (a), defendant-counterclaimant does not have this information at this time, but alleges that said information is in the hands and within the knowledge of plaintiff-counterdefendant.

Plaintiff's Interrogatory 1 (b)

1 (b) The date on which said alleged advice was given, and whether the same was conveyed orally or in writing;

Answer to Plaintiff's Interrogatory 1 (b)

1. (b) In answer to Interrogatory 1(b), the answer is the same as that given for Interrogatory 1 (a).

Plaintiff's Interrogatory 1 (c)

1 (c) The specific nature of the alleged advice so given.

Answer to Plaintiff's Interrogatory 1 (c)

1. (c) In answer to Interrogatory 1 (c), the answer is the same as that given for Interrogatory 1 (a).

Plaintiff's Interrogatory 2

2. With respect to Paragraph A-XI of said counter-claim, state specifically, by name and address, which of defendant-counterclaimant's customers and prospective customers have been advised by plaintiff-counterdefendant that, if they purchase and use defendant-counterclaimant's pumps, pumping apparatus or pumping systems, they will be liable for infringement of plaintiff-counterdefendant's said patents Nos. 2,344,958 and 2,424,285, and

(a) Who, on behalf of plaintiff-counterdefendant, gave any such advice, and to whom;

Answer to Plaintiff's Interrogatory 2

2. In answer to Interrogatory 2, defendant-counterclaimant does not at this time have the name and address of its particular customers and prospective customers who have been advised by plaintiff-counterdefendant that if they purchase and use defendant-counterclaimant's pumping systems and apparatus, that they will be liable for infringement of plaintiff-counter-defendant's patents Nos. 2,344,958 and 2,424,285.

2 (a) In answer to Interrogatory 2 (a), defendant-counterclaimant does not have the information requested at this time, but states that said information is within the knowledge and possession of plaintiff-counterdefendant.

Plaintiff's Interrogatory 2 (b)

2(b) The date on which said alleged advice was given, and whether the same was conveyed orally or in writing;

Answer to Plaintiff's Interrogatory 2 (b)

2 (b) In answer to Interrogatory 2 (b), the answer is the same as that given for Interrogatory 2 (a).

Plaintiff's Interrogatory 2 (c)

2 (c) The specific nature of the alleged advice so given.

Answer to Plaintiff's Interrogatory 2 (c)

2 (c) In answer to Interrogatory 2 (c), the answer is the same as that given for Interrogatory 2 (a).

Plaintiff's Interrogatories Endorsed. Filed June 11, 1948.

Answers to Plaintiff's Interrogatories Endorsed. Filed June 25, 1948.

[Title of District Court and Cause.]

STIPULATION RE DEFENDANTS' PUMPS
AND PUMP SYSTEMS

It is hereby stipulated and agreed by and between plaintiff and defendants in the above entitled action, through their respective counsel, that all of said defendants prior to the commencement of this action and subsequent to the issuance of letters patent No. 2,344,958, here in suit, and that said defendant Berkeley Pump Company, a corporation, prior to the commencement of this action and subsequent to the issuance of letters patent No. 2,424,285, also here in suit, within the Northern District of California, Southern Division, have or has made and sold to others pumps and pump systems in all respects like the pumps and pump systems illustrated and described in Exhibits A, B, C, D and E of defendants, interrogatories filed herein on or about the 25th day of June, 1948.

Date: Jan. 20th, 1949.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff.

MELLIN & HANSCOM,

/s/ OSCAR A. MELLIN,

Attorneys for Defendants.

[Endorsed]: Filed May 11, 1949.

[Title of District Court and Cause.]

MEMORANDUM DECISION

Goodman, District Judge.

The evidence introduced at the trial of this patent infringement suit clearly established that some of the claims of the two patents assigned to the plaintiff, if they are valid, have been infringed by pumps which the defendant has manufactured and sold. The principal and most difficult issue to resolve is whether these claims are void for want of novelty or invention.

The two patents relate to centrifugal pumps, both with and without attached injector assemblies, and pumping systems of which such pumps and assemblies are a part. Both centrifugal pumps and injector assemblies are old in the art. The inventions claimed constitute improvements on the earlier pumps and pumping systems. A brief description of centrifugal pumps and injector assemblies and how they were employed in older pumping systems will aid in understanding the nature of the plaintiff's improvements.

Basically, a centrifugal pump consists of a disc-shaped impeller mounted on a motor-driven shaft within a casing. The shaft may be disposed either vertically or horizontally. Between the two discs forming the base and the top of the impeller and integrally connecting them are ribs curving outwardly from the center to the edge of the discs. When the impeller is in rotation, a suction is created which

will draw the water from the well up a suction pipe into a chamber at the bottom of the casing and thence into the impeller, itself, through the eye at the center of its base. The water will be centrifugally discharged from the impeller radially through the passages defined by its ribs into a surrounding chamber. By virtue of the centrifugal force created by the rotation of the impeller, the water will have acquired a pressure higher than at intake. The amount of pressure thus obtained will depend upon the size of the impeller and its speed of rotation. If a single impeller is not capable of creating the desired pressure, the water may be directed through additional impellers. These impellers may be mounted on the same shaft in a series above the first impeller if the shaft is vertically disposed or along side the first impeller if the shaft is horizontally disposed. As the water emerges from each impeller it will be directed to the eye of the next impeller. The pressure of the water will be progressively increased as it passes through each impeller. From the last impeller the water will discharge into a chamber tapped by the service line.

Often the consumer will use water from the same source for different purposes, as for example, for irrigation and for household use. Each purpose may require a different water pressure. A separate pump may, of course, be used to supply the water at each pressure. But, a single pump capable of supplying water at different pressures would ordinarily be preferable. A single centrifugal pump can be made

to discharge water at various pressures in at least two ways. The water being sucked from the well may be divided before it enters any of the impellers. A portion may be directed into one set of impellers, while the remainder is directed through another set of impellers which differ in size or in number from those of the first set. The water emerging from each set will be at a different pressure. Although both sets of impellers may be mounted on the same shaft, they will not be in series because none of the water will pass through both sets of impellers. Impellers arranged in this manner are said to be in parallel.

A multi-pressure centrifugal pump may also be constructed by mounting the impellers in series and bleeding off some of the water at one of the earlier impeller stages while permitting the remainder of the water to pass through all the impellers. With this arrangement, some of the impellers may be thought of as doing double duty, since all of the water will pass through the earlier impellers and only part of the water will pass through the last impellers. Since the plaintiff's patents relate to multi-pressure centrifugal pumps with the impellers arranged in series, it is with such pumps that the subsequent discussion will be concerned.

Multi-pressure centrifugal pumps of the type just described are old in the art. But of the specific models brought to the Court's attention, none were designed specifically to supply water at different pressures simultaneously. The discharge openings tapping the various impeller stages were equipped

with control valves with the intention that only one would be open at a time.

In some of these models the impellers were mounted one above the other on a vertically disposed shaft; in others they were mounted side by side on a horizontally disposed shaft. While a steady, simultaneous multi-pressure discharge might have been obtained from the models with the vertical shaft, it could not be assured. In all of these models the discharge opening at the first impeller stage was lower than the eye of the second impeller. If the control valve at this discharge opening were open too wide in relation to the volume of water being sucked into the pump, all of the water would flow out this discharge and none of it would pass on through the upper impellers to the high-pressure discharge.

In one of the models having a horizontal shaft—the Ensslin model, United States patent number 1,494,595—the discharge openings were at the top of the casing immediately above each impeller stage tapped. It seems likely that a steady simultaneous discharge of water at several pressures could have been obtained from this pump. Barring some unusual internal pump structure, the eye of the second impeller by the force of gravity would necessarily be submerged in the water emerging from the first impeller before the water could flow out the discharge opening. However, the internal construction of this pump is not disclosed in the drawings, nor in detail in the specifications which state that the pump was designed to supply water at variant pressures alternately rather than simultaneously.

Centrifugal pumps are limited in their ability to raise water from a well, and in actual practice, are used to lift water a maximum of 20 to 25 feet. For deeper wells, an injector assembly is employed to boost the water from the well up the suction pipe to a point where the pump can lift it the rest of the way. When an injector assembly is part of the pumping system, a portion of the water discharged from the centrifugal pump will be directed down a pressure pipe back into the well. The pressure pipe may be either concentric with or parallel with the suction pipe, but it will lead into the suction pipe through a nozzle. The water being forced through the nozzle at a high pressure will create a suction and draw water from the well with it up the suction pipe to a point where the suction created by the pump will be effective to draw the water into the pump.

The centrifugal pump itself operates in the same manner with or without an injector assembly attached. But special difficulties are presented in supplying a multi-pressure discharge from a centrifugal pump with an injector assembly attached. The injector assembly requires a certain minimum volume and pressure of water for continued operation. Therefore if too much of the water is permitted to flow from a discharge opening tapping one of the earlier impeller stages of the pump unit, insufficient water will pass through the pump to supply the injector assembly. When there is no injector assembly in the system, if an excessive volume of water flows

out the low pressure discharge, the result will be merely the starving of the high pressure discharge for water. But with an injector assembly in the system, the result will be the stalling of the entire system.

Furthermore when an injector assembly is part of the system a similar problem is presented even though only a single discharge to service is desired. Some means must be provided to divide the water between the service line and the pressure line leading to the injector so as to assure the injector of an ample supply of water. If the single service line is supplied from an early impeller and the injector from the last impeller, the problem presented is the identical one of dividing the water between the service line discharge opening and the eye of the succeeding impeller. If both the service line and the pressure line to the injector are supplied from the last impeller stage, the problem of division is somewhat different, but present, nevertheless.

The prior art discloses systems in which various means were employed to attempt to solve these problems. United States patent number 2,150,799 to Frank Jacuzzi describes a system with a single discharge to service, the service line and the injector both being supplied from the last impeller stage. A control valve at the service line opening regulates the volume and pressure of the stream of water supplying the injector.

A system with a dual discharge to service is depicted in United States patent number 1,758,400 to

Rachelle Jacuzzi. Both the high-pressure service line and the injector are supplied from the last or single impeller stage of the pump. There is a control valve at the high-pressure discharge opening to regulate the amount of water flowing out of it. The suction line leading from the well to the pump intake is tapped for the low pressure discharge to service. It is not possible to tap the suction line when a centrifugal pump alone must draw the water from the well, because the pump would suck in air through the opening in the line. But, when an injector assembly is forcing water up the suction line, the line may be tapped at a point below where the suction from the pump unit takes effect. A control valve and also a pipe elbow with its vertical portion extending up higher than the pump intake are employed at this suction line opening to prevent all the water from being drained out of the low-pressure discharge. Tapping the suction line is not the perfect means of providing a low-pressure discharge. This is so because the control valve must be properly set and periodically adjusted to assure that sufficient water will pass by the opening and be drawn into the pump to supply the injector assembly. And, the testimony indicated that a suction line discharge is fraught with other difficulties.

In the Italian patent number 139,161 to Veronesi and the German patent number 376,684 to Speck the single service line and the injector are supplied from different sets of impellers in parallel on a sin-

gle shaft. The extra number of impellers required for this arrangement should make it less desirable, however, than a system in which the pump impellers are in series.

In the model described in the British patent number 382,592 to Schmid the water is discharged from the first impeller into a pressure tank. Water at low-pressure is drawn off at the top of this tank for consumer use and a second impeller which feeds only the injector is supplied with water through an opening at the bottom of the tank. Thus a supply of water to the injector is assured.

In the Italian patent to Veronesi number 260,417 a centrifugal pump with a horizontal shaft is pictured. The injector assembly is supplied from the last impeller stage. At the top of the casing, immediately above the first impeller stage is a discharge opening. The drawing does not picture a passage-way from the chamber surrounding the first impeller leading to this opening. But an arrow depicting the flow of water is drawn from this chamber to the opening, thus indicating that the passage-way is there. In this pump, as in the Ensslin model previously described, the force of gravity would accomplish the division of the water between the low pressure discharge and the succeeding impellers by favoring the impellers. The eye of the second impeller being lower than the discharge opening will be submerged before the water will flow from the opening. The plaintiff earnestly urges that the structure described is not sufficiently disclosed because the

draftsman indicated the passageway merely by the flow arrow and not by dotted lines as is the orthodox engineering practice. This question will be considered later.

This in brief was the state of the prior art as presented to the Court by the parties. The plaintiff's two patents in general relate to systems in which water at various pressures can be obtained simultaneously from a single centrifugal pump for consumer use and to operate an injector assembly. The impellers of the pump unit are in series and various impeller stages are tapped to secure the water at different pressures.

Of the claims of Patent No. 2,424,285, some merely describe a pump unit with a multi-pressure discharge for consumer use. Others relate to a system in which an early impeller stage of the pump unit is tapped for a low-pressure service line, and the final impeller stage supplies an injector and a high-pressure service line. The feature of plaintiff's pump and system which represents the real improvement over prior pumps and systems is the means of positively dividing the water between each discharge opening at an early impeller stage and the succeeding impellers which feed the high-pressure service lines or an injector or both.

Plaintiff divides the water in the following manner: In the side walls of the chamber surrounding each impeller are a number of port holes. As the impeller rotates a similar stream of water will be forced through each one of these ports. The water is dis-

charged through these ports into passage-ways leading up over the top wall of the impeller chamber to the eye of the second impeller. If the impeller stage is tapped by a discharge opening, the passage-ways are constructed so that those from a few of the ports will lead not to the eye of the second impeller but to the discharge opening. This means of division does not merely favor the second impeller eye. It positively divides the water between the impeller eye and the discharge opening so that both are always assured of a supply of water.

The water from the last impeller stage of plaintiff's pump discharges into a small chamber. If both an injector and a high-pressure service line are to be supplied from the last impeller stage, some means must be provided to divide the water between them. It would seem that plaintiff might have effected this division in the same manner as he previously divided the water between the low-pressure discharge opening and the eye of the succeeding impeller. However, plaintiff chose to place a control valve at the opening to the high-pressure line to control the flow of water.

Then plaintiff apparently conceived the idea that if only the injector were supplied from the last impeller stage, and a previous impeller stage were tapped from the high-pressure discharge, this control valve could be eliminated. This arrangement also has another advantage. If a well is very deep the pressure required to operate the injector may be much greater than would be required for any pur-

pose of the consumer. Thus if the water for consumer use is drawn off at an early impeller stage, the consumer is saved the expense of raising all the water to the pressure required by the injector. The idea of isolating the injector so that it alone is supplied from the last impeller stage is the subject of plaintiff's second patent number 2,344,958. The claims of the two patents fail to express clearly the line of division between them, and one must resort to the specifications to determine it. Broadly speaking patent number 2,424,285 is intended to cover the concept of obtaining a simultaneous multi-pressure discharge from a centrifugal pump with its impellers in series, and of obtaining the simultaneous discharge, without danger of stalling the attached injector assembly. Patent number 2,344,958 is intended to cover the concept of providing the service discharge from an impeller stage other than that from which the injector is supplied.

The defendant's pumping systems are designed to accomplish these same purposes, and are substantially the same as the plaintiff's except for the means employed to divide the water between the low pressure discharge opening and the eye of the succeeding impeller. Plaintiff employs the system of ports and passages to positively divide the water between the discharge opening and the eye. Defendant applies the force of gravity to favor the eye of the impeller over the discharge opening. It has been previously explained that in pumps with a horizontal shaft, the force of gravity would necessarily

keep the eye of the second impeller submerged although water is running out the discharge opening tapping the first impeller stage. The defendant had adapted a pump with a vertical shaft to utilize the force of gravity for this purpose. In defendant's two-impeller model the first impeller stage is so constructed that the water discharges into a chamber which extends up past and higher than the second impeller. The low-pressure discharge opening is in the wall of this chamber at its highest point. The second impeller is reversed so that its eye faces upward rather than downward, and will always be submerged by the water in the chamber before the water reaches the height of the discharge opening. In the defendant's three stage model, the chamber extends up past and higher than both the second and third impellers. The eyes of both of these impellers face upward. The chamber is tapped at its highest point for the low-pressure discharge. The eye of the top impeller is submerged by the water in the chamber. The top impeller may be tapped for a second discharge to service although it feeds directly into the middle impeller below it. The middle impeller stage which will be the stage of highest pressure supplies the injector.

It is clear that the defendant's systems infringe those of the plaintiff unless the precise means of dividing the water between the discharge opening and the impeller eye is made an essential element of plaintiff's claims. Plaintiff's system of ports and passages is an essential element in some of his

claims. Other of his claims, however, are not so limited. These claims, plaintiff alleges, have been infringed and they clearly have been.

Considering plaintiff's systems as a whole it is apparent that they are both useful and novel. No prior systems are substantially identical with plaintiff's systems. But each claim alleged to have been infringed must separately meet the tests for novelty as well as invention¹, although of course each may be construed in relation to the others² and the specifications³.

The nine claims of the second patent No. 2,344,958, with the exception of claim 3 which is not alleged to have been infringed, vary only in details not germane to the question of invention. They may therefore be considered as a unit. All of them describe a system in which a pump unit with its impellers in series is tapped at an early impeller stage to feed a service line and at a subsequent impeller stage of higher pressure to feed an injector assem-

¹Continental Paper Bag Company v. Eastern Paper Bag Company, 210 U. S. 405, 419 (1908); *In re Garrett*, 63 F. 2d 113, 114 (C.C.P.A. 1933); 2 Walker On Patents 770 and 1231 (Deller's Edition 1937).

²In *re Arendt*, 74 F.2d 765, 768 (C.C.P.A. 1935).

³Carnegie Steel Company v. Cambria Iron Company, 185 U. S. 403, 432 (1902); *Howe Machine Company v. National Needle Company*, 134 U. S. 388, 394 (1890); *Greenowalt v. American Smelting & Refining Co.*, 10 F.2d 98 (9 Cir. 1926); 2 Walker On Patents 1242 (Deller's Edition 1937).

bly. Some of them specify that the discharge passage to the service line is valve free and others do not.

Consideration of the prior art previously described makes it apparent that there can be no invention disclosed in claims so broad as these⁴. The system described is the precise system pictured in the drawings of the Italian patent number 260,417 to Hugo Veronesi. The question posed by the plaintiff as to whether the Veronesi drawing makes it sufficiently clear that the first impeller stage is tapped by the discharge opening must be answered in the affirmative. The defendant introduced the deposition of Davide Veronesi, Hugo's son, to show that the drawing was intended to picture a pump with the service line and the injector supplied from different stages, and also that such pumps were manufactured and sold in Italy. This testimony of course is immaterial, since the plaintiff is bound by nothing not disclosed on the face of the patent. (R. S. §4923, 35 U.S.C. §72.) The defendant also introduced certain Italian catalogues distributed by Hugo and Davide Veronesi which picture and describe their pumps. Although these catalogues con-

⁴For a discussion of the consideration which mitigate against a finding of invention where claims are too broad see *O'Reilly v. Morse*, 56 U. S. 61, 112 (1853). See also *Edison v. American Mutoscope Co.*, 114 Fed. 926, 934 (2 Cir. 1902); *Bracewell v. Passaic Prin Works*, 107 Fed. 467, 473 (C.C.S.D.N.Y. 1901); *Auto Hone Co., Inc. v. Hall Cylinder Hone Co.*, 3 F.2d 479, 482 (N.D., Ohio 1924).

stitute a printed publication of a type which would bind the plaintiff, they do not picture the internal structure of the pumps illustrated. Since no translation of their descriptive passages was furnished the Court, they can be disregarded.

Admittedly there are no dotted lines in the Veronesi patent drawing showing a passage through the pump casing from the chamber surrounding the first impeller to the discharge opening. But, the only reasonable purpose of the flow arrow drawn from the impeller chamber to the opening would be to indicate that the passage is there. Although dotted lines may be the standard method of indicating such passageways, they are not always so used. This is significantly demonstrated by the drawings in plaintiff's own patents. Plaintiff has failed to indicate at least one obvious passageway in his drawings either by dotted lines or a flow arrow. But, plaintiff contends that a passage from the first impeller chamber to the discharge opening in the Veronesi pump is negatived by certain statements in the specifications. This same argument was advanced when this patent was cited as a reference in the patent office and apparently was accepted by the examiner. These statements are to the effect that water issuing from the exhaust of the pump is divided into two portions, one portion being directed to the place of utilization and the other to the injector. The flaw in this argument is that the patent is not directed to the pump unit at all, but rather to the injector.

The inventor states that the injector "is not oper-

ated by a special pump, but operates with any suitable type of pump." The statements in the specifications were intended to refer to pump units in general and not to the particular pump which the inventor chose to attach to the injector in the drawings.

However, since the invention claimed in this patent was the injector, there is nothing in the patent to indicate the significance of a discharge passage from an early impeller stage of the pump unit and the isolation of the injector at the last impeller stage. For this reason, perhaps, the drawing should not in itself be considered a complete anticipation of plaintiff's system. But this drawing when considered in connection with such other prior art as the system described in the Schmid patent clearly points the way to such a system as claimed in plaintiff's patent No. 2,344,958. In the Schmid model the first impeller did not feed directly into the second, but indirectly through a pressure tank. But, the basic idea of feeding the discharge line from one impeller and the injector from a succeeding impeller was embodied in this model. The Veronesi drawing showed how it might be accomplished without the intervening pressure tank. Furthermore, disregarding the absence of control valves, plaintiff's system would be duplicated merely by connecting an injector to one of the discharge connections of the old multi-discharge centrifugal pumps. Merely removing the control valves accomplishes nothing in itself. The control valves are made unnecessary only because of plaintiff's means of dividing the water

between the discharge opening and the succeeding impeller eye. It must be concluded that the claims 1, 2, 4, 5, 6, 7, 8 and 9 of the patent number 2,344,958 are invalid for want of invention.

The claims of patent 2,424,285 which plaintiff alleges to have been infringed are 3, 9-14, 17 and 18. Claim 13 in substance is identical with those claims in patent 2,344,958 which do not specify that the discharge opening to service is valve free. Claims 9 and 10 are the same as claim 13 except that instead of stating merely that each impeller stage of the pump feeds into the succeeding stage they emphasize that each stage feeds "directly" into the succeeding stage. There is no invention in the direct feed. Such a feed is found in many of the prior multi-pressure centrifugal pumps. One would have only to connect an injector to those pumps to have the system described in these claims.

Claim 11 relates to a system in which two pumps are employed. The water from the low-pressure pump is discharged into a chamber having an outlet to service and also an outlet to the high-pressure pump which supplies the injector. This system is fully anticipated by the British patent to Schmid, number 383,592. This patent was cited as a reference by the patent examiner. But the file wrapper shows that claim 11 was not in the original application but was added later as a prelude to an interference proceeding and thus the Schmid patent was apparently never considered in relation to this claim. This claim, however, is not infringed by the

defendant's systems. There is a significant difference between systems employing only one pump and those employing two.

Claim 12 describes a system consisting of an injector assembly; a pump with its impeller stages adjacently disposed on a common shaft and feeding one into the other in series, and with a discharge outlet at one of these stages; and "means for delivering to said discharge outlet, fluid at one pressure; and means for delivering fluid to said nozzle at a pressure in excess of that at said discharge outlet." This system could be duplicated by attaching an injector to one of the multi-discharge pumps with control valves. It is also pictured in the Veronesi drawing.

Claim 14 describes a pump with its impeller stages in series, having a discharge passage leading from the last stage, another discharge passage leading from an intermediate stage, a valve means in at least one of said discharge passages for limiting the minimum pressure of flow there through—and a by-pass passage directed downwardly from a stage in said series, above the intermediate stage. Disregarding this by-pass passage, which is certainly not an inventive difference, this claim is descriptive of any of the early centrifugal pumps with dual discharge outlets.

Claim 3 describes a system having a pump unit with its impeller stages in series; a discharge passage leading from an early stage of the pump unit; a discharge passage leading from a subsequent stage

of said pump unit; a by-pass passage directed downwardly from a state of high pressure in said series and connected to an injector assembly. In substance this claim is identical with claim 14 except that it specifies that an injector assembly is to be connected with the by-pass passage. As previously indicated, there is no invention in connecting an injector assembly to a pump unit no different from prior pump units.

The short answer to the question of validity is that plaintiff in all of these claims has attempted to include virtually every possible system in which a multi-pressure discharge is supplied from a pump with an injector attached. The state of the prior art is such that plaintiff is not entitled to such a monopoly. The new and significant feature of plaintiff's systems is the means of positively dividing the water between a discharge outlet tapping an impeller stage and the eye of the succeeding impeller. Those claims directed specifically to this means have not been alleged to have been infringed and their validity need not be determined. It might be noted, however, that even this means of division is not entirely new. The system of ports and passages for directing water from an impeller chamber to the eye of the succeeding impeller was described and claimed in the United States patent to Frank Jacuzzi, Number 2,150,799. All plaintiff did was to adapt this system of ports and passages to a dual discharge pump by reconstructing some of the pas-

sages to direct the water to the discharge opening rather than to the eye of the succeeding impeller.

Claims 17 and 18 describe a system in which a dual-discharge pump is connected so that one discharge feeds into a pressure tank. There is free communication between the pressure tank and the low-pressure discharge line so that pressure equalization will occur throughout the system during the quiescent periods. Thus, if water is drawn from the low pressure line, when the pressure falls below a certain value, an automatic pressure switch will start the pump. Plaintiff seems to assume that by adding a pressure tank and switch to his multi-pressure centrifugal pump, he achieves a distinct invention. This assumption is fallacious. Pressure tanks and switches are, of course, old in the art. If the high-pressure discharge of one of the old multi-pressure centrifugal pumps were connected to a pressure tank and switch, and the low-pressure discharge control valve left partially open, the pump would automatically start when sufficient water was drawn off through the low-pressure line. Plaintiff devised a means of positively dividing the water between the discharge outlet and succeeding impeller stages, and still maintain the open communication throughout a multi-pressure discharge system is not unique with plaintiff's system and is not a separate invention.

Claims 3, 9, 10, 12, 13, 14, 17 and 18 of patent number 2,424,285 have been infringed, but for the

reasons stated are void for want of invention. Claim 11 has not been infringed, but is void for want of novelty.

Judgment accordingly⁵.

Dated: February 23rd, 1950.

/s/ LOUIS E. GOODMAN,
United States District Judge.

[Endorsed]: Filed February 23, 1950.

[Title of District Court and Cause.]

DEFENDANTS' AND COUNTERCLAIMANT'S
PROPOSED FINDINGS OF FACT AND
CONCLUSIONS OF LAW

Pursuant to Rule 52 of the Federal Rules of Civil Procedure and Rule 5(e) of the Rules of Practice of the District Court of the United States for the Northern District of California, the Court makes the following Findings of Fact and Conclusions of Law:

⁵What has been stated, in my opinion, sufficiently sets forth findings of fact and Conclusions of Law. It is so intended. However, if counsel wish to present findings in a separate document, they may do so, provided they are confined to the considerations upon which the decision rests.

Findings of Fact

1.

Plaintiff, Jacuzzi Bros., Incorporated, is a corporation duly organized and existing under and by virtue of the laws of the State of California, and having its principal place of business at Richmond, County of Contra Costa, State of California.

2.

Defendant, Berkeley Pump Company, a corporation, is a corporation duly organized and existing under and by virtue of the laws of the State of California, and having its principal place of business at Berkeley, County of Alameda, State of California.

3.

The defendant, Berkeley Pump Company, a partnership, was a partnership composed of the individual defendants, Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynn timer T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, which partnership did business under the said name of Berkeley Pump Company at Berkeley, County of Alameda, State of California, and that said partnership was dissolved on August 1, 1946.

4.

Plaintiff, Jacuzzi Bros., Incorporated, is the owner of all the right, title and interest in, to and

under the Letters Patent in suit Nos. 2,344,958 and 2,424,285.

5.

The two patents in suit both relate to multi-stage centrifugal pumps with low and high pressure discharge openings both with and without attached injector assemblies, and pumping systems of which such pumps and assemblies are a part. Both multi-stage centrifugal pumps with high and low pressure discharge openings and injector assemblies are old in the art.

6.

The claims of the two patents in suit fail to express clearly the line of division between them, and one must resort to the specifications to determine it; for example, claim 13 of patent No. 2,424,285 in substance is identical with those claims in patent No. 2,344,958 which do not specify that the discharge opening to service is valve free.

7.

The absence of control valves in the patented systems is unimportant because merely removing the control valves accomplishes nothing in itself. The control valves are made unnecessary only because of the means shown in the patents in suit of dividing the water between the discharge opening and the succeeding impeller eye.

8.

The significant feature of the pumping systems of the patents in suit is the means of positively dividing the water between a discharge outlet tapping an impeller stage and the eye of the succeeding impeller. This means of division is not entirely new and is described in prior United States patent No. 2,150,799 (Defendants' Exhibit T). All the patentee in the patents in suit did was to adapt the system of ports and passageways so shown in the prior United States patent No. 2,150,799 (Defendants' Exhibit T) to a dual-discharge pump by reconstructing some of the passages to direct the water to the discharge opening rather than to the eye of the succeeding impeller.

9.

That the defendants' accused pumping system is a system which includes a multi-stage centrifugal pump with the impellers arranged in series on a vertical shaft. An injector assembly is connected to and is supplied from the high-pressure discharge of the last impeller stage of the centrifugal pump. A low-pressure discharge opening is tapped into the first stage so that there may be a simultaneous discharge of water to service or use from the first stage at one pressure and a discharge to the injector from the last stage at a higher pressure.

10.

In the defendants' accused pumping system the

force of gravity accomplishes the division of water between the low-pressure discharge outlet and the next succeeding impeller by arrangement of the eye of the said impeller at an elevation lower than the low-pressure discharge opening so that such impeller eye is always submerged and is fully supplied before water can flow through the low-pressure discharge opening.

11.

That defendants' accused pumping system does not employ the means of the patents in suit of positively dividing the water between a discharge opening tapping an impeller stage and the eye of the succeeding impeller, but instead arranges the eye of the impeller to be fed at a lower elevation than the discharge opening so that the force of gravity will keep the eye of the impeller submerged although water is discharging through the discharge opening, which use of the force of gravity for the same purpose was old and well known long prior to the patents in suit and is inherent in the pumps of prior art patents Nos. 730,842, 1,494,595 and 260,417, Defendants' Exhibits Nos. P, R and N.

As to the Prior Art

12.

Multi-pressure centrifugal pumps of multi-stage character with the impellers in series and having a

discharge at an earlier impeller stage to discharge part of the water thereat while directing the remainder of the water through the remaining stages and discharge were old in the art long prior to the suit and are exemplified in the prior patents to Veronesi, No. 260,417, Sulzer, No. 704,144, Rateau, No. 730,842, Stepanoff, No. 2,248,3312, Ensslin, No. 1,494,595 and Schmid (British), No. 382,592, Defendants' Exhibits Nos. N, O, P, Q, R and V, respectively.

13.

Prior art patent to Ensslin, No. 1,494,595, Defendants' Exhibit R, discloses a multi-stage pump with a discharge opening for each impeller stage. A steady simultaneous discharge of water at several pressures can be obtained from this pump.

14.

Prior art patent No. 2,150,799 (Jacuzzi), Defendants' Exhibit T, discloses a pumping system including a multi-stage centrifugal pump and an ejector with a discharge to service and a discharge to the injector, both discharges being supplied from the last impeller stage of the pump. A control valve regulates the volume and pressure of the stream of water supplying the ejector.

15.

Patent No. 1,758,400 (Jacuzzi), Defendants' Exhibit S, discloses a pumping system with a dual

discharge to service and a high-pressure discharge to the injector. Both the high-pressure service line and the injector are supplied from the last (single) impeller stage of the pump. The suction line leading from the well to the pump (supplied by the injector) is tapped for low-pressure discharge to service.

16.

Prior art Italian patent No. 139,161, Defendants' Exhibit M, discloses a multi-stage centrifugal pump with sets of impellers in parallel and an injector. The intake water is divided as it enters the pump, part going to one set of impellers and discharged for use at low pressure, the remainder going to the second set of impellers and discharged under a higher pressure solely to supply the injector.

17.

Prior patent to Speck No. 376,684, Defendants' Exhibit U, is similar in all respects to the system of Italian patent No. 139,161, Defendants' Exhibit M, except the discharge to use is at a pressure higher than the discharge to the injector.

18.

The Schmid patent No. 382,592, Defendants' Exhibit V, discloses the basic idea of feeding a service discharge line from one impeller at one pressure and feeding the injector from a succeeding impeller at a higher pressure.

19.

The prior Italian patent to Veronesi, No. 260,417, Defendants' Exhibit N, discloses a pumping system including a multi-stage centrifugal pump with the impellers arranged in series on a horizontal shaft. An injector assembly is connected to and is supplied from the high-pressure discharge of the last impeller stage of the centrifugal pump. A low-pressure discharge opening is tapped into the first stage so that there may be a simultaneous discharge of water to service or use from the first stage at one pressure and a discharge to the injector from the last stage at a higher pressure.

20.

In the pump disclosed in Italian patent to Veronesi, No. 260,417, Defendants' Exhibit N, the force of gravity accomplishes the division of water between the low-pressure discharge outlet and the next succeeding impeller by the arrangement of the eye of the intake of said impeller at an elevation lower than the low-pressure discharge opening so that such impeller eye is always submerged and is fully supplied before water can flow through the low-pressure discharge opening.

21.

That the Italian patent to Veronesi, No. 260,417, Defendants' Exhibit N, clearly discloses on its face the obvious presence of a low-pressure discharge

opening communicating with the first impeller stage of the centrifugal pump for a low-pressure discharge to service.

22.

There are no dotted lines in the Veronesi patent drawing showing a passage through the pump casing from the chamber surrounding the first impeller to the discharge opening. But, the only reasonable purpose of the flow arrow drawn from the impeller chamber to the opening clearly indicates that the passage is there. Although dotted lines may be the standard method of indicating such passageways, they are not always so used. This is significantly demonstrated by the drawings of plaintiff's own patents in suit Nos. 2,424,285 and 2,344,958, where plaintiff failed to indicate at least one obvious passageway in his drawings, either by dotted lines or a flow arrow.

23.

The presence of a low-pressure discharge opening and passageway from the chamber of the first impeller stage of the centrifugal pump disclosed in Veronesi patent No. 260,417, Defendants' Exhibit N, is not negated by the statement in the specification of that patent to the effect that water after being raised to the desired pressure is divided into two portions, one portion being directed to the place of utilization and the other to the injector.

As to Patent No. 2,344,958

24.

The claims of patent in suit No. 2,344,958 are intended and purport to cover the idea of isolating the injector so that it alone is supplied from the last impeller stage, and providing a service discharge from an impeller stage other than that from which the injector is supplied.

25.

Claims 1, 2, 4, 5, 6, 7, 8 and 9 of patent No. 2,344,958 all describe a pumping system in which a pump unit with its impellers in series is tapped at an early impeller stage to feed a service line and at a subsequent impeller stage of higher pressure to feed an injector assembly and these claims differ only in details not germane to the question of invention.

26.

Claim 3 of patent No. 2,344,958 varies from the remaining nine claims of said patent only in a detail not germane to the question of invention, which detail is that it includes an additional discharge at an impeller stage preceding the impeller stage to which the injector nozzle is connected, which specification of an additional low pressure or service discharge adds nothing patentable to the said claim and the same is therefore invalid as being met by the prior art in the same manner as the remainder of the nine claims of the patent.

27.

The pumping systems claimed in claims 1, 2, 4, 5, 6, 7, 8 and 9 of patent in suit No. 2,344,958 would be duplicated without invention merely by connecting an injector to one of the high-pressure discharge connections of the old and well known multi-discharge centrifugal pumps such as shown in patents Nos. 704,144; 730,842; 2,248,312 and 1,494,595, Defendants' Exhibits Nos. O, P, Q and R.

28.

Claim 3 of patent No. 2,344,958 would be duplicated without invention merely by connecting an injector to one of the high-pressure discharge connections of the old and well known centrifugal pumps such as shown in patents Nos. 704,144; 730,842; 2,248,312 and 1,494,595, Defendants' Exhibits Nos. O, P, Q and R.

29.

The pumping system described in claims 1, 2, 4, 5, 6, 7, 8 and 9 of patent No. 2,344,958 is the precise system clearly disclosed in the prior Italian patent No. 260,417 to Hugo Veronesi, Defendants' Exhibit N.

30.

The claims in suit Nos. 1, 2, 4, 5, 6, 7, 8 and 9 of patent No. 2,344,958 are so broad that they define no invention and are invalid.

31.

The claims in suit Nos. 1, 2, 4, 5, 6, 7, 8 and 9 of patent No. 2,344,958 do not define an invention over the prior art and are invalid for want of invention.

32.

Patent in suit No. 2,344,958 fails to disclose and claim an invention patentable over the prior art and is, therefore, invalid for want of invention.

33.

The claims in suit Nos. 1, 2, 4, 5, 6, 7, 8 and 9 of patent No. 2,344,958 if valid have been infringed by defendants.

At to Ptaent No. 2,424,285

34.

Of the claims of patent No. 2,424,285 some merely describe a pump unit with a multi-pressure discharge for consumer use. Others relate to a pumping system in which an early impeller stage of the pump unit is tapped for a low-pressure service line, and the final impeller stage supplies an injector and a high-pressure service line.

35.

Claims 9 and 10 of patent No. 2,424,285 are the same as claim 13 thereof except that instead of stating merely that each impeller stage of the pump feeds into the succeeding stage, they emphasize that each stage feeds "directly" into the succeeding

stage. There is no invention in the direct feed. Such a feed is found in many of the prior multi-pressure centrifugal pumps. One would have only to connect an injector to those prior pumps to have the system described in these claims.

36.

The pumping system defined in claim 11 of patent No. 2,424,285 is fully anticipated by the disclosure of British patent to Schmid No. 382,592, Defendants' Exhibit No. V.

37.

Claim 12 of patent No. 2,424,285 defines a pumping system which could be duplicated without invention by merely attaching an injector to one of the prior art multi-discharge pumps with control valves. It is also completely disclosed in the Veronesi patent No. 260,417, Defendants' Exhibit N, and hence the claim fails to define a patentable invention.

38.

Claim 14 of patent No. 2,424,285 is completely descriptive of any of the earlier prior art centrifugal pumps with dual-discharge outlets except for the inclusion of a by-pass passage which adds nothing inventive to the system and hence said claim fails to define a patentable invention.

39.

Claim 3 of patent No. 2,424,285 is in substance identical with claim 14 thereof except it additionally specifies that an injector is to be connected with the by-pass passage and fails to define a patentable invention in that there would be no invention involved in connecting an injector assembly to a pump unit no different from prior art pump units.

40.

Claims 17 and 18 of patent No. 2,424,285 describe a system in which a dual-discharge pump is connected so that one discharge feeds into a pressure tank. There is free communication between the pressure tank and the low-pressure discharge line so that pressure equalization will occur throughout the system during quiescent periods. Thus, if water is drawn from the low-pressure line, when the pressure falls below a certain value, an automatic pressure switch will start the pump. Plaintiff seems to assume that by adding a pressure tank and switch to its multi-pressure centrifugal pump, it achieves a distinct invention. This assumption is fallacious. Pressure tanks and switches are, of course, old in the art. If the high-pressure discharge of one of the old multi-pressure centrifugal pumps were connected to a pressure tank and switch, and the low-pressure discharge control valve left partially open, the pump would automatically start when sufficient water was drawn off through the low-pressure line.

41.

That claims 3, 9 to 14, inclusive, 17 and 18 of patent No. 2,424,285 are so broadly drawn as to include virtually every possible system in which a multi-pressure discharge is supplied from a pump with an ejector attached.

42.

Claims 1, 2, 4 to 8, 15 and 16 of patent No. 2,424,285 are so broadly drawn as to include virtually every possible system in which a multi-pressure discharge is supplied from a pump with an ejector attached, and which include virtually every possible means for dividing the input to the pump between a discharge outlet and the injector to assure an operating supply to the injector.

43.

Claims 1, 2, 4 to 8, 15 and 16 of patent No. 2,424,285 differ from claims 3, 9 to 14, 17 and 18 of said patent by including (in differently stated broad terms in each claim) as typically stated in claim 2 of said patent: "means within said assembly for dividing the input to said pump assembly between said discharge outlet and said injector nozzle to assure an operating supply to said injector assembly"; which function and result, as stated in Finding of Fact 12, were old in the art, and the addition thereof to said claims 1, 2, 4 to 8, 15 and 16 add nothing patentable to said claims, and said claims

are, therefore, invalid as not defining a patentable invention.

44.

The claims in suit Nos. 3, 9 to 14, 17 and 18 of patent No. 2,424,285 are so broad that they define no invention and are invalid.

45.

The claims in suit Nos. 3, 9 to 14, 17 and 18 of patent No. 2,424,285 do not define an invention over the prior art and are invalid for want of invention.

46.

The pumping systems claimed in the claims of patent No. 2,424,285 would be substantially duplicated without invention merely by connecting an injector to one of the high-pressure discharge connections of the old and well known multi-discharge centrifugal pumps such as shown in patents Nos. 704,144; 730,842; 2,248,312 and 1,494,595, Defendants' Exhibit Nos. O, P, Q and R.

47.

Patent in suit No. 2,424,285 fails to disclose and claim an invention patentable over the prior art and is, therefore, invalid for want of invention.

48.

The claims in suit Nos. 3, 9, 10, 12, 13, 14, 17 and 18 of patent No. 2,424,285 if valid have been infringed by defendants.

49.

Claim 11 of patent in suit No. 2,424,285 has not been infringed by defendants.

Conclusions of Law

1.

This Court has jurisdiction of the cause of action and of the parties.

2.

Patent No. 2,344,958 and each of the claims thereof are invalid and void in law.

3.

Patent No. 2,424,285 and each of the claims thereof are invalid and void in law.

4.

Defendants and defendant-counterclaimant are entitled to a judgment—

(a) dismissing the complaint;

(b) adjudging each of said Letters Patent Nos. 2,344,958 and 2,424,285 and each of the claims thereof to be invalid and void in law;

(c) enjoining the plaintiff, its associates, partners, attorneys, clerks, servants, agents, employees and confederates, and all in privity with them, and each of them, from threatening any of defendant-

counterclaimant's customers or dealers, or any present or prospective customers, sellers, dealers or users of defendant-counterclaimant's pumps, pumping systems and pumping apparatus, with infringement litigation because of their buying, selling or using defendant-counterclaimant's pumps, pumping systems or pumping apparatus, or advising or charging any of such customers, present or prospective, dealers or users, either verbally or in writing, with or notifying them of infringement of Letters Patent Nos. 2,344,958 and 2,424,285 if they should sell or offer for sale or use defendant-counterclaimant's pumps, pumping systems or apparatus;

(d) adjudging that defendants' and defendant-counterclaimant's be awarded their costs and disbursements herein.

Dated: March 17th, 1950.

/s/ LOUIS GOODMAN,

United States District Judge.

Lodged March 3, 1950.

[Endorsed]: Filed March 17, 1950.

In the United States District Court, Northern District of California, Southern Division.

No. 27905-G

JACUZZI BROS., INCORPORATED, a Corporation,
tion,

Plaintiff,

vs.

BERKELEY PUMP COMPANY, a Corporation,
BERKELEY PUMP COMPANY, a Partnership, and FRED A. CARPENTER, LANA L. CARPENTER, F. F. STADELHOFFER, ESTELLE E. STADELHOFFER, JACK L. CHAMBERS, WYNNIE T. CHAMBERS, CLEMENS W. LAUFENBERG and MARIE C. LAUFENBERG, Partners Associated in business under the Fictitious Name and Style of BERKELEY PUMP COMPANY,

Defendants.

JUDGMENT

This cause having come on to be heard upon the issues raised by the Complaint, Answer to Complaint and Counterclaim, and Answer to Counterclaim, and the Court having filed its Findings of Fact and Conclusions of Law, It Is Ordered, Adjudged and Decreed:

I.

That plaintiff, Jacuzzi Bros., Incorporated, is a

corporation duly organized and existing under and by virtue of the laws of the State of California, and has its principal place of business at Richmond, County of Contra Costa, State of California.

II.

That defendant - counterclaimant, Berkeley Pump Company, is a corporation duly organized and existing under and by virtue of the laws of the State of California, and has its principal place of business at Berkeley, County of Alameda, State of California.

III.

That defendant, Berkeley Pump Company, was a partnership composed of the individual defendants Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynnie T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, which partnership was dissolved under the date of August 1, 1946.

IV.

That this Court has jurisdiction of this cause.

V.

That this Court has jurisdiction of the plaintiff and of the defendants and the counterclaimant.

VI.

That plaintiff, Jacuzzi Bros., Incorporated, is the

owner of all the right, title and interest in, to and under the Letters Patent of the United States Nos. 2,344,958 and 2,424,285.

VII.

That Letters Patent No. 2,344,958, dated March 28, 1944, are invalid and void in law.

VIII.

That Letters Patent No. 2,424,285, dated July 22, 1947, are invalid and void in law.

IX.

That an injunction issue out of and under the seal of this Court enjoining the plaintiff, its associates, partners, attorneys, clerks, servants, agents, employees and confederates, and all in privity with them, and each of them, from threatening any of defendant-counterclaimant's customers or dealers, or any present or prospective customers, sellers, dealers or users of defendant-counterclaimant's pumps, pumping systems and pumping apparatus, with infringement litigation because of their buying, selling or using defendant-counterclaimant's pumps, pumping systems or pumping apparatus, or advising or charging any of such customers, present or prospective, dealers or users, either verbally or in writing, with or notifying them of infringement of Letters Patent Nos. 2,344,958 and 2,424,285 if they should sell or offer for sale or use defendant-counterclaimant's pumps, pumping systems or apparatus.

X.

That the Complaint of the plaintiff herein be and the same is hereby dismissed.

XI.

That defendants and counterclaimant herein shall recover against the plaintiff for their costs herein expended in the sum of.....Dollars (\$.....) and have execution therefor.

/s/ LOUIS GOODMAN,
United States District Judge.

Dated: March 17, 1950.

Lodged March 3, 1950.

Entered in civil docket March 20, 1950.

[Endorsed]: Filed March 17, 1950.

[Title of District Court and Cause.]

NOTICE OF APPEAL

Notice is hereby given that the plaintiff above named, Jacuzzi Bros., Incorporated, a corporation, does hereby appeal to the United States Court of Appeals for the Ninth Circuit from that certain decree and judgment entered in this action on the 20th day of March, 1950, and from each and every part of

said decree and judgment, except paragraphs I, II, III, IV, V and VI thereof.

Dated: April 11, 1950.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff and
Appellant.

Receipt of Copy acknowledged.

[Endorsed]: Filed April 11, 1950.

[Title of District Court and Cause.]

DESIGNATION OF CONTENTS OF RECORD
ON APPEAL

Notice is hereby given that the plaintiff and appellant, Jacuzzi Bros., Incorporated, does hereby designate the portions of the record, proceedings, and evidence to be contained in the record on appeal in this cause:

1. All of the matters required by the provisions of subdivision (g) of Rule 75 of the Federal Rules of Civil Procedure.

2. All evidence received during the trial, including the testimony of all witnesses, all stipulations or admissions of counsel, all writings and other ex-

hibits received in evidence, and all motions and applications made during the trial and rulings thereon.

3. Memorandum Decision of trial judge filed February 23, 1950.

4. Notice of Motion to Amend Findings, all proceedings had in connection therewith and rulings made thereon.

5. The complete record and all the proceedings and evidence in the action.

Dated: April 11, 1950.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff and
Appellant.

Receipt of copy acknowledged.

[Endorsed]: Filed April 11, 1950.

[Title of District Court and Cause.]

ORDER AMENDING FINDINGS OF FACT
AND CONCLUSIONS OF LAW

The motion of the plaintiff to amend the findings of fact and conclusions of law came on regularly to be heard this 11th day of April, 1950, and said motion was made pursuant to and in accordance

with the provision of subdivision (b) of Rule 52 of the Federal Rules of Civil Procedure, Messrs. Charles O. Bruce and Nathan G. Gray appearing for the plaintiff, and Messrs. Mellin, Hanscom & Hursh by Oscar A. Mellin appearing for the defendants; and said motion having been argued and submitted, and the attorneys for all of the parties consenting thereto, and good cause appearing therefor:

It Is Hereby Ordered that the findings of fact and conclusions of law heretofore made and filed in the above cause be, and the same are hereby, amended by adding thereto and incorporating therein the Memorandum Decision filed in this cause on the 23rd day of February, 1950.

Done in open court this 11th day of April, 1950, and it is hereby ordered that this order be filed as of said date.

/s/ LOUIS GOODMAN,

United States District Judge.

Approved as to form:

MELLIN, HANSCOM &
HURSH,

/s/ JACK E. HURSH,

Attorneys for Defendants.

[Endorsed]: Filed April 12, 1950.

In the Southern Division of the United States
District Court for the Northern District of
California

No. 27,905-G

Before: Hon. Louis E. Goodman,
Judge.

JACUZZI BROS., INC., a Corporation,
Plaintiff,

vs.

BERKELEY PUMP COMPANY, a Corporation,
Defendant.

REPORTER'S TRANSCRIPT

Wednesday, May 11, 1949

Appearances:

For Plaintiff:

CHARLES O. BRUCE, ESQ.,
NATHAN G. GRAY, ESQ.

For Defendant:

MELLIN & HANSCOM,
OSCAR A. MELLIN, ESQ.,
JACK E. HURSH, ESQ.

The Clerk: Jacuzzi Bros. vs. Berkeley Pump
Company.

Mr. Mellin: Ready for the defendant.

Mr. Bruce: Ready for the plaintiff. [2*]

Opening Statement on Behalf of Plaintiff

* * *

The Court: You will have to tell me what you mean by an airplane engine and not pumps. It was only a matter of a few months. I don't wish any inference being drawn from that.

Mr. Bruce: I was not making an inference, except that Mr. Carpenter had worked there.

The Jacuzzi Bros. are now located in Richmond, out on the Bayshore Highway, close to El Cerrito, I would say. Now, I think we have some formal exhibits that we might get in at this time.

The Court: Well, you are going to offer patents, I suppose, into evidence?

Mr. Bruce: Yes, Your Honor.

The Court: That is all you have to show, so far as validity is concerned, on your opening case, isn't it?

Mr. Bruce: We will offer in evidence the two patents in suit; Patent No. 2,424,285 to Jack E. Piccardo and John E. Armstrong, as Exhibit 1.

(Whereupon Patent No. 2,424,285, referred to above, was received in evidence and marked Plaintiff's Exhibit No. 1.)

Mr. Bruce: As Exhibit No. 2—this is a printed copy of the patent, if Your Honor please—Patent No. 2,344,958, issued March 28, 1944, to John E. Armstrong and Jack E. Piccardo.

* Page numbering appearing at top of page of original certified Reporter's Transcript.

(Whereupon Patent No. 2,344,958, referred to above, was received in evidence and marked Plaintiff's Exhibit No. 2.) [35]

* * *

Mr. Mellin: I have no objection to that, Your Honor.

Mr. Bruce: We will offer the photographic enlargement of Patents 285 as Plaintiff's Exhibit 3, and the photostatic colored enlargement of Patent No. 958 as Plaintiff's Exhibit 4. And, Mr. Mellin, may it be stipulated that we can refer to these patents by the last three numbers?

Mr. Mellin: I would prefer it, Your Honor. It will save a lot of time. [36]

The Court: Very well.

(Whereupon photographic enlargements of diagrams contained in Patents 2,424,285 and 2,344,958 were received in evidence and marked Plaintiff's Exhibits No. 3 and 4, respectively.)

Mr. Bruce: We will call Mr. Jacuzzi.

CANDIDO JACUZZI

called as a witness on behalf of the plaintiff, sworn.

The Clerk: Will you state your name to the Court?

A. Candido Jacuzzi.

Direct Examination

By Mr. Bruce:

Q. Will you state your full name and residence, Mr. Jacuzzi?

(Testimony of Candido Jacuzzi)

A. Candido Jacuzzi, 1447 Eda Street, Berkeley.

Q. What is your age? A. 46.

Q. What is your business or occupation?

A. Our business is manufacturing pumps, and the occupation, my occupation is vice president and general manager of Jacuzzi Bros., Inc.

Q. Jacuzzi Bros., Inc.; the plaintiff in this action? A. Yes, sir.

Q. And how long have you occupied that position with the plaintiff corporation?

A. You mean vice president and general manager? [37]

Q. Yes, sir. A. Since '37.

Mr. Bruce: Mr. Mellin, will you stipulate to the incorporation of the corporation under the statute, the plaintiff?

Mr. Mellin: Surely. Whatever you say it is, I agree.

Q. (By Mr. Bruce): How long have you been engaged with said corporation?

A. Since 1919. However, from 1920 to '23 I was working elsewhere.

Q. Will you describe the work that you have performed in connection with the corporation?

A. During the early years we were in the manufacture of airplane propellers and airplanes. That is, the years between 1919 to 1930. And at the same time we were manufacturing pumps and water systems; that is, from the year 1925 on.

(Testimony of Candido Jacuzzi)

Q. What type of pumps and water systems did you manufacture?

A. Mostly of the injector type, most of our pumps are of the injector type.

Q. Now, what do you mean by an injector type pump?

A. Injector type—it is a pump that operates without the necessity of any working parts in the well. We supply an injector assembly, a pump unit or a pump system or a pressure system. It is two or three different methods in which to describe it.

Q. Would you refer to the drawings which you have had prepared and describe an injector pump system and pressure system for the [38] Court?

A. Surely. May I——

* * *

Afternoon Session, Wednesday, May 11, 1949

Mr. Bruce: At this time I would like to present a stipulation relative to the pumps manufactured by the Berkeley Pump Company. Those have been identified in exhibits to interrogatories, and probably it would simplify my record, Mr. Mellin. Would you stipulate that we might introduce in evidence photographic enlargements?

Mr. Mellin: I have no objection.

Mr. Bruce: I might do this and get rid of this part of it: We would introduce as Plaintiff's Exhibit No. 5 photographic enlargement of figure 36, representing a pump and pressure system as manufactured and sold by the defendants; and as Exhibit

(Testimony of Candido Jacuzzi)

No. 6, a photographic enlargement of Figure 36-A, representing a pressure system manufactured by the defendants; and as No. 7, photographic enlargement of Figure 71, representing a manufacture of the defendants; and as Exhibit No. 8, a photographic enlargement of a Berkeley Pump Company water system as manufactured and sold by defendants.

The Court: That has no figure?

Mr. Bruce: It has no figure. It is taken from a circular entitled "Gracious Country Living." And as, I think, of No. 9, a photographic enlargement of a pressure system designated Figure 37, Berkeley two-stage shallow well water system.

Mr. Mellin, you will stipulate that these exhibits 5 through [43] 9 are those that represent the pump systems covered by this stipulation?

Mr. Mellin: There is no question. I will do this, Your Honor. I do not remember what the stipulation is, but these are all pumps manufactured by the defendant. I would like to ask counsel through the Court at this time if each of these devices is charged to infringe either one or both of the patents in suit.

Mr. Bruce: That has been answered in the answers to interrogatories, Your Honor, and the answer is yes.

(The photographic enlargements referred to were thereupon marked, respectively, Plaintiff's Exhibits No. 5 to 9, inclusive, in evidence.)

Q. (By Mr. Bruce): Calling your attention,

(Testimony of Candido Jacuzzi)

Mr. Jacuzzi, to the pressure system illustrated in Figure 36 of Exhibit 5, will you describe the structure and mode of operation of the system there illustrated?

A. In the Exhibit 5, injector pressure system, we are taking water out of the low pressure discharge and also the high pressure discharge to operate the injector jet and lift water from the well to the centrifugal pump and repeat the cycle.

Q. How does that work in conjunction with the pressure tank?

A. With an automatic switch pressure tank, and, of course, this is what we call a free discharge. As a matter of fact, the valve shown in there is not required. It is not required for [44] the operation of the system. This system will operate without any mechanical devices to control the flow of water on the discharge of this pump.

Q. Marking in here, "1," what is that?

A. That is an injector assembly.

Q. Will you designate the first impeller?

A. This is the first impeller.

Q. We will mark that 2. Water discharges from the first impeller and goes where?

A. It goes either to a free discharge or into the second impeller.

Q. The second impeller we will mark 3. What is the pressure of the water delivered from the first impeller?

A. The amount of water, Mr. Bruce?

(Testimony of Candido Jacuzzi)

Q. No, relatively with respect to the rest of the system.

A. Well, the first impeller naturally is lower than the second impeller, which operates your injector.

Q. And the discharge of the second impeller leads to a discharge where?

A. Either to the injector, or there is a provision here to take water out at the high pressure.

Q. What is that provision that you mentioned?

A. An opening (indicating).

Q. We will call that 4. The greatest pressure is developed for operating what element of the system? [45] A. The injector.

Q. What becomes of the water which is delivered from the first impeller?

A. The water from the first impeller divides. It divides automatically; in other words, the amount of water for use for the water system is only that amount that is not needed for the second impeller to function the injector.

Q. In discharging to the pressure tank, it passes through a discharge pipe, and what is the element in the discharge pipe, which I mark 5?

A. That is a gate valve, generally used in case of repairing the pump in the field, assuming that we have a motor burned out or a worn out impeller because of sand, or a worn out injector. In that case we close valve No. 5 and we retain whatever water pressure we have in the tank for the household use, and this here represents a union that can be un-

(Testimony of Candido Jacuzzi)

coupled and break the pump away so it can be dismounted and repaired.

Q. What did you call 5? A. A gate valve.

Q. Does the gate valve have any function in the system when the system is in operation?

A. No, definitely not. It is not required in this system.

Q. So far as the operation of this system was concerned, that could be a straight pipe?

A. That is right. [46]

Q. Without the gate valve there at all?

A. That is right.

Q. Now, is the mode of operation of the Berkeley pump system as shown in Exhibit 5 and that of the Jacuzzi system shown in Exhibit 3 of patent 285, or the exhibit illustrated in the enlargement, Exhibit 3, similar?

* * *

Q. (By Mr. Bruce): You are familiar with the structure illustrated in Exhibit 5 of the patent 285?

A. This is Exhibit 5?

Q. Exhibit 3. A. This is?

Q. Yes, being Figure 1 of Patent 285.

A. I see.

Q. You are familiar with the structure there?

A. Definitely, yes.

Q. Has your company manufactured pump systems embodying the features shown in Exhibit 3?

A. Yes, sir. [48]

* * *

(Testimony of Candido Jacuzzi)

Q. (By Mr. Bruce): Mr. Jacuzzi, are you familiar with the mode of operation of the structure illustrated in Figure 1 of Exhibit 3?

A. Yes, sir.

Q. How long have you been familiar with it?

A. Oh, since 1941.

Q. State whether there is any similarity in the mode of operation [49] of the water system shown in Exhibit 3 and Exhibit 5? A. Yes.

Mr. Mellin: If Your Honor please, I think that calls for his conclusion. Is there any similiarity? If he was asked to point out the similarities and the differences, I would have no objection to it.

The Court: Are you asking that as a preliminary question?

Mr. Bruce: A preliminary question.

The Court: Are you going to follow it with a question——

Mr. Bruce: Yes.

The Court: If you are, I will overrule the objection.

Q. (By Mr. Bruce): Will you point out the similarity?

A. The similiarity is that in both systems, the system in Exhibit 3, we are taking water under pressure as we do in Exhibit 5, and to operate that injector as we do in Exhibit 3, operate that injector and supply water for a low pressure discharge as we do in Exhibit 5; and also in Exhibit 5 there is a provision marked "A," as we have in Exhibit 3, to take water out for any uses, such as a pressure sys-

(Testimony of Candido Jacuzzi)

tem use in this case, which would be on this here (indicating), or for irrigation, a pressure system used for either case; in other words, the openings provided in either pump are there for the purpose of making this system into this system.

Mr. Mellin: May I ask a question, Your Honor, just to clear the matter up? [50]

Q. Isn't the part marked A in Exhibit 5 a pipe plug and that is plugged up?

A. That is an opening.

Q. But it is plugged?

A. It is still an opening.

The Court: It is what?

A. It is there for a purpose.

Q. It is still an opening?

A. It has to be opened, as you defined. You may have a condition in the field that will require this opening; in other words, a condition of a farmer. Here we are only supply, say, 20 to 40 pounds pressure. That is not enough. Or 10 to 15 pounds pressure. That is not enough. We want a higher pressure. So what do we do? We take this plug out, connect our pressure on this side, and use this one for our open discharge, as we do in Figure 3.

Q. (By Mr. Mellin): But as shown in 5—I want an answer to this one question—as shown in 5-A, that is a plug?

A. It is an opening in terms of pumps, because in my connection of 25 years we always considered that an opening. It could be closed.

(Testimony of Candido Jacuzzi)

Q. May I have an answer to the question? It is closed on Exhibit 5 with a plug, isn't it?

A. It is an opening if the plug is removed. As I explained before, it is there for a purpose. [51]

The Court: I understand what your explanation is, Mr. Jacuzzi, but what the attorney wants you to say is the obvious, that in exhibit 5 there is a plug there. Of course, if you open it, it will be an opening, is that right? Irrespective of the reason for it——

A. In the picture it is a plug.

* * *

Q. Is there a water communication throughout the system of [52] Exhibit 3? A. Yes.

Q. So that is there the same communication throughout the system so far as Exhibit 5 is concerned? A. Yes.

Mr. Mellin: If Your Honor please, I object and move to strike that answer as calling for a conclusion. I think he has a right to show the two, instead of just the conclusion that it is the same. He is leading the witness and then asking for his conclusion at the same time, and we are not going to be able to get very far. I think the witness should point out the circuit of one and the circuit of the other, and then we will know.

The Court: I think you are moving a little too fast, Mr. Mellin. I think you have to give him a chance to ask a preliminary question; as long as

(Testimony of Candido Jacuzzi)

it is followed up by the detail of it, there is really no harm in that. It is not leading. The question calls for a yes or no answer. He answered yes. Now you can follow it. I will allow the answer to stand subject to a question that would call for a factual statement.

I will ask it:

Q. Point out the basis upon which there is the similarity.

A. Here we have equalization of pressure from the pressure system through each one of these impellers to the foot valve and to this discharge, which we have identically the same in here, equalization of pressure through these impeller into the [53] foot valve and into the system to this or any one of the discharges that are selected in the field.

Q. (By Mr. Bruce): Assuming you connect a pressure tank to the plugged opening 4 in Exhibit 5——

A. I said A before.

Q. It should have been 4.

Mr. Mellin: I think I misled you, Mr. Jacuzzi. I thought it was an A.

The Court: The record will show where the witness referred to A in Exhibit 5 he meant 4.

The Witness: 4. What was the question?

(The question was read as far as it had proceeded.)

Q. (By Mr. Bruce): ——and remove the pressure tank—Withdraw that. Would you have to

(Testimony of Candido Jacuzzi)

put anything in the discharge lines from 4 to the pressure tank?

A. It is necessary at this point that the pressure tank, as shown here, is removed completely and brought on this side, remove the plug and connect it on this side, and then it is required at that point that the control valve be installed between the high pressure discharge and the tank. As you will notice, Your Honor, these colors as they are here, the lighter the color the less the pressure. As the color darkens up, the pressure increases until, at the highest point, it is the darkest blue. There is necessarily a control valve to make the system operative, if the pressure tank is connected on this [54] side. Then, of course, when that goes off, you would have to have a plug on this opening here.

Q. Assume that you leave that open at that point——

A. You could.

Q. ——or connect it to a irrigation line.

A. This could be left open for irrigation purposes, in which case it may be necessary to adjust it so as to maintain sufficient water to operate the injector, to satisfy the injector on this line and satisfy the pressure system on this line. You see, we must have enough water for both, the pressure system and the injector. What is not required by those two openings, the pressure system and the injector, that water may be used for other purposes or for irrigation on this discharge here. The discharge could be, of course, any distance from the

(Testimony of Candido Jacuzzi)

pump. It could be 500 feet away or a thousand feet away, so that it is not necessary for the farmer or whoever uses the pump to come to the pump itself to open up a valve to start the system. It could be done with that valve 500 feet away by merely—a spigot or whatever you want to call it merely opened, because the entire system is what we call pressure equalization.

When the pump stops, the pressure tank no longer—I mean the pressure switch stops the pump, where we have enough pressure in the tank, and then we have what we call pressure equalization. The pressure is equal inside the tank as well as inside the pump or inside the pipe 500 feet away or inside the [55] pipe in the well. So to start the pump, the only thing you have to do is to open the discharge valve in the system or an irrigation discharge valve or spigot at whatever distance it may be, and once you do that, you open that valve, you release pressure from the tanks sufficiently—assuming your tank pressure is 20 to 40 pounds you release the pressure sufficiently so that your pressure switch will cut in and start your pump.

Q. Do you know of any other pressure system where you have that pressure equalization?

A. Do I know of any?

Q. Any other? A. Yes.

Q. —than the two there?

A. I am talking about ours and the Berkeley Pump Company. Those are the two.

(Testimony of Candido Jacuzzi)

Q. Those are the two?

A. That we know of.

Q. Is it customary to attach a pressure tank to the opening 4 on Exhibit 5?

A. Yes, very customary. It is very customary.

Q. (By Mr. Mellin): By Berkeley Pump?

A. By Berkeley Pump, by ourselves, by many of our dealers, distributors, because that is obvious to do it in the field as the requirements are needed. In other words, when pumps are ordered, they are sent out from the plant with instructions that [56] they can be used either from this discharge or other discharge, depending upon the conditions for which the pumps are sold.

Q. It is a matter of selection?

A. It is a matter of selection.

Mr. Bruce: Would you say that that was one of the reasons for the placing of that plug in the casting?

A. You mean plug No. 4?

Q. Of Exhibit 5.

A. Plug No. 4 on Figure 5?

Q. Yes.

A. It is obvious it is for that purpose.

Q. And that has been done, hasn't it?

A. Definitely.

Q. It has been done with the Berkeley system?

Mr. Mellin: Just a moment. It seems to me, Your Honor, we are getting a lot of testimony in here that may or may not be so. Here they are

(Testimony of Candido Jacuzzi)

showing this device infringes. Now they are hooking it up in a different way.

The Court: I think the objection is good. The witness, of course, can testify as to what he has seen done with a device of Berkeley Pump.

Q. (By Mr. Bruce): Have you seen the Berkeley Pump Company catalogues?

A. Yes, I seen it. I haven't studied it thoroughly.

Q. Have you seen such a connection illustrated in the Berkeley [57] Pump Company catalogues?

A. You mean as shown——

Q. No, with a pressure tank connected to the discharge 4 of figure 5.

A. Don't we have it here, Mr. Bruce? Yes.

Mr. Mellin: You are referring to Exhibit 9?

Mr. Bruce: Exhibit 9.

The Witness: That is right. You see the mode of operation here is the same. We have pressure equalization from the low pressure discharge to the high pressure intake. When the pump stops, that is, the pressure switch, we have enough pressure; and then when all this pressure here becomes equalized, by connecting a pipe——

Mr. Mellin: There is no pipe connection there.

The Witness: A pipe can be connected—is that better?

Mr. Mellin: All right, but there isn't any showing. We are doing a lot of assuming. I do not mean to interrupt, Your Honor, but they have all of our

(Testimony of Candido Jacuzzi)

pumps here, all of our setups, and if we go through them orderly one at a time without assuming a connection when there isn't any there, we will find out which infringes and which does not.

The Witness: If a pipe where this opening is, is provided here, which in the picture is a plug, if an opening is provided here in the field, it is obvious for a farmer with literature of instruction to remove this plug and install a piece of pipe [58] ten feet or ten hundred feet that he can draw water at low pressure from this shallow well system. He can draw water at low pressure without the necessity of coming to the system to open or close the valve, as would be required. In other words, the system will operate automatically whether the water is drawn ten feet or ten hundred feet. We have what we call the—in other words, the pressure equalization. There are no check valves, no valves in between the system that close this.

The Court: What you are saying is that on Figure 9 the tank is where No. 4 on Figure 5 is located?

A. Yes.

Q. The so-called plug which is on the righthand side of Figure 9, which counsel has marked No. 6, is where the tank with the valve 5 on it is located on Exhibit 5, is that right? It is just the reverse?

A. That is right.

Q. And you say the pressure system is such that you can do it either way?

A. It is obvious, Your Honor, because——

(Testimony of Candido Jacuzzi)

Q. Don't argue. Is that correct?

A. Yes.

Q. (By Mr. Bruce): Referring to Exhibit 6, Figure 36 A, will you explain the construction and mode of operation of the figure represented in that exhibit?

A. The construction and mode of operation of Figures 5 and 6 [59] are identically the same in every respect. The only exception is that Figure 5 is what we call a parallel pipe injector system. In other words, there are two pipes, one parallel to the other, that go down into the well, and we use that where we have large diameter wells. For small diameter wells, two inch, three inch and so forth, we use what we call a single pipe system, one pipe inside the other, or at times we use the well itself for the outside pipe. You see, over here they are identically in every respect, and from here down it is just a question of selecting which injector for which well, because the well may explain, one larger and one smaller.

Q. So far as the casting of the pump unit is the same, are they the same?

A. They are identically the same.

Q. And what you have said with respect to Exhibit 5, without the necessity of repeating it, you would say the same thing with respect to Exhibit 6?

A. Yes.

Q. In comparing the mode of operations of Exhibit 6 with that of Exhibit 3?

A. Yes. [60]

(Testimony of Candido Jacuzzi)

Q. Now, I call your attention to Exhibit 7, Fig. 71, and will you describe or explain the construction and mode of operation of the pump unit shown there?

A. Exhibit 7, as to the casting, as far as the parts, we call this "bracket," "bottom." They are identically the same—"bracket," "bottom" indicating). What we have——

Q. Let us mark that so that we can get it. Which do you mean as the bracket?

A. This is the bracket and the bottom (indicating).

Q. In other words, this would be the bracket?

A. No.

Q. Well, you draw the line on there.

A. Right here, "bracket" and "bottom" (marking on diagram).

Q. All right. Mark those 7, the figure 7.

A. 7?

Q. 7. A. 7.

Q. 7 and 8. A. (Witness complied.)

Q. And will you mark the corresponding part of the casting on Exhibit 5, giving them the same numbers? A. 7, 8 (marking on diagram).

Q. All right. Now, continue with your explanation.

A. What we have here on Figure 7, we have what we call an intermediate stage, which is—in other words, this is No. 1 [61] stage, the lower stage, No. 2 and No. 3 (indicating). Here you have the

(Testimony of Candido Jacuzzi)

selection of three discharges. You can either take your water out of what we call the low pressure discharge——

Q. Which we will mark 9 (marking on diagram).

A. We can take out the water of the medium pressure discharge.

Q. Which we will mark 10 (marking on diagram).

A. Or we can take out the water at the maximum pressure discharge (indicating).

Q. Which we will mark 11 (marking on diagram).

A. So that as far as the mode of operation of the two systems, or the three or four systems, it is the same. It is just a question of selecting from which operation, or which opening, rather, you want to take your water; because you may find farmers that will require only 20 to 40 pounds pressure. Or another one requires, say, 30 to 50 pounds pressure. Or you might select the highest pressure for high pressure pumps, high pressure purposes, which at times are required in farms and other places.

Q. From what source is the water supplied to the first impeller?

A. From the first impeller it is supplied by the jet. In other words, from the highest pressure obtainable of the pump, we supply the water that operates the jet.

Q. Well, is the jet shown there?

A. No.

(Testimony of Candido Jacuzzi)

Q. Would you explain how that would be attached, or is it? [62]

A. How it would be attached?

Q. Yes.

A. It is very simple; the literature tells us how to do it. The other one, Mr. Bruce. That one wouldn't be——

Q. What have you done, for the purpose of the record, Mr. Jacuzzi?

A. Well, now, we have attached——

The Court: No, he wants to know what you have done. What have you done? You have put something on Exhibit 7. He wants you to tell us what you have done.

A. (Continuing): Well, what we have done, we have attached the injector assembly to the pump units.

Q. The same injector assembly as shown on Exhibit 5? A. Yes.

The Court: Now, you had better mark what you put on there in some way to identify it.

Mr. Bruce: Mark that Exhibit 7-A.

(Diagram of injector assembly attached to Exhibit 7, referred to above, was marked Plaintiff's Exhibit 7-A in evidence.)

Q. (By Mr. Bruce): Now, what is the purpose of the opening, 10?

A. What is the——

Q. The purpose of it.

(Testimony of Candido Jacuzzi)

A. To opening 10? [63]

Q. Of opening 10.

A. Well, opening 10, you can connect it, the same pressure system as we show here on 5. That can be connected into 10, and of course operating in that way, then you will no longer need any mechanical devices between the discharge of your pump to the tank, or any whatsoever to operate, for this system to operate. It will become hydraulically balanced so that it will not require any mechanical devices in any one of the discharges here (indicating). In other words, all you do is to prime the pump, throw the switch on, and it becomes operative. There is no valves of any kind needed.

Q. Now, would a pressure tank be connected to opening 9 of Exhibit 7, the same as shown in Exhibit 5?

A. Yes, it could. It is just a question of selecting the pressure that is desired.

Q. Now, so far as the sections of the casting which house the impeller is concerned, is there any difference in the casting of Exhibit 7 and Exhibit 5?

A. You mean as far as the impellers are concerned, Mr. Bruce?

Q. So far as the casting is concerned.

A. Well, as far as the pictures show, there is no difference on the impeller.

Q. Well, how many impellers have you?

A. Oh, system—some we have three impellers—on this one we have three impellers, on Figure 5 we have two. [64]

(Testimony of Candido Jacuzzi.)

Q. Now, what is done to the casting to accommodate the third, if anything—to accommodate the housing of the third impeller—to the casting or the middle impeller, we will say?

A. Well, you have an intermediate stage.

Q. You said an intermediate stage?

A. Yes.

Q. Well, in other words, the top of the casting which houses the second impeller in the series and houses the casting—the casting which houses the first impeller in the series—does that part of the casting remain the same as in Exhibit 5?

A. Identical.

Q. Then you simply add a section to the same housing inserted in between, for the housing of the third impeller?

A. That's right.

Q. In the series. The third impeller in the series?

A. That's right.

Q. Now, does the addition of a third impeller change the function or mode of operation of the system?

A. No, no; but the reason of the third impeller—in other words, the third impeller is not the limit. It could be four, five, or six, any number that you desire. Those are selected, the number of impellers are selected to be assembled in the pump, and in the pump unit or the stages, depending upon the water level or the pressure that you want to obtain. The [65] water level in the well. In other words, if we have a water level of a hundred 200, or 300 feet,

(Testimony of Candido Jacuzzi.)

it is required a lot of pressure, it is needed a lot of pressure to lift water up, and in that case we add impellers, as you see here in Fig. 3. And now in Fig. 3 we have——

Q. Exhibit 3.

A. I am sorry, Exhibit 3—we have one, two, three, four, five, six impellers, see? In cases like this is where we want a lot of pressure to operate a pressure system, and we need a lot of pressure to operate the injector or what we may call a deep lift, where the water is very deep.

Q. Now, is there any difference in the arrangement of the impellers in Figure 7 and in—Exhibit 7 and Exhibit 8?

A. Well, the only difference is that there are, instead of being one into the other, as we have here, we have here what we call “back-to-back,” you see. We come in from the first—did you say Exhibits 5 or 7?

Q. 7.

A. We come in here from the back, and that is done to balance, usually, the thrust or to relieve a certain amount of pressure into the packing, because when we lift water from great lifts, we have to have pumps with a lot of pressure, and usually too much pressure against the packing gland will give us trouble. So the design of putting it back-to-back is to relieve the pressure into the packing gland of the pump. [66]

(Testimony of Candido Jacuzzi.)

Q. And does that change affect the mode of operation? A. No, no, it would not.

Q. And is that the customary thing in the trade, to do? A. You mean to put it back-to-back?

Q. Oh, yes, or to arrange them one on top of the other? A. That's right.

Mr. Mellin: That is old, too? Did I get that answer right? You can arrange it either back-to-back or one on top of the other? That is all old? I didn't get your answer, Mr. Jacuzzi. Both are old?

The Witness: What was the question?

Mr. Bruce: He said it is customary practice.

Q. Now, then, the same similarities between Exhibits 3 and 7 exist as between Exhibits 3 and 5? Similarities of mode of operation, I mean?

A. Yes, sir.

Q. And what you have said with respect to Exhibit 5 would apply likewise to Exhibit 7?

A. Yes, sir.

Q. Now, then, I will call your attention to Exhibit 8. Will you explain the structure and mode of operation of the figure, of the pump pressure system, shown in Exhibit 8?

A. Here we have a dual-discharge pump, a low-pressure discharge for irrigation purposes, and the high pressure, the highest pressure from the impeller, producing the highest pressure, into [67] your pressure system. This low-pressure discharge, as I stated before——

Q. The low-pressure discharge?

(Testimony of Candido Jacuzzi.)

A. Yes.

Q. We will call that 12 (marking on diagram).

A. The low-pressure discharge, 12, can be at any distance from the well, and again in this particular case we have what we call "pressure equalization" from the point where you want to take the water to the pump system or pressure system. We have an open circuit so that the pressure equalizes when the pump becomes inoperative, so that when you open the valve, either 10 feet or 1000 feet, you cause the pressure, the water to come from the tank and feed your opening, because your pressure, it causes your pressure switch to start the pump, causing your—then as it is shown here, and also in this case it is a very simple question to——

The Court: I think the witness is getting into a discussion of the matter. Can't you get him to just answer the questions a little more directly.

Mr. Bruce: All right.

Q. Is there any difference between the casting of the pump unit in Exhibit 8 and Exhibit 5, 6 or 7?

Mr. Mellin: That is of the centrifugal pump, Mr. Bruce?

Mr. Bruce: I withdraw that. Not to include 7.

Q. But is there any difference in the casting of the pump unit [68] shown between Exhibit 6, 8 and 5?

A. No difference.

Q. Provided with the same number of opening?

(Testimony of Candido Jacuzzi.)

A. Exactly the same number of openings. You have another one there, Mr. Bruce.

Q. The same number of impeller stages?

A. Yes, sir.

Q. Present in Exhibit 8 as in the——

A. Let me see this one. Yes.

Q. As in Exhibits 5 and 6?

A. That's right.

Q. This system is designed for what kind of operation, as between deep or shallow well?

A. What was the question again? Which one, No. 8?

Q. Is this one designed for and adapted for a shallow well or a deep well operation, or both?

A. Both.

Q. Exactly as shown there, it is shown for what operation?

A. As it is shown here now, it only shows connected into the pressure tank and connected in to low pressure discharge.

Q. Well, is it for deep or shallow wells?

A. Both.

Q. Installations?

A. Both. It would be, it could be for either.

Q. It could be for either? [69]

A. Because here you have your opening or shallow well and here you have your opening for deep well. So by merely putting the injector on (attaching diagram to Exhibit 8), you have the same thing.

(Testimony of Candido Jacuzzi.)

Q. You have placed on Exhibit 8 an injector system, showing an injector system, the same as in——

A. An injector system assembly, which will be complete now, and make the pressure system.

Q. And that is the same as is shown in Exhibit 5? Your injector assembly which you have placed, attached to Exhibit 8, is the same as an injector system that is shown on Exhibit 5?

A. Yes, the injector assembly.

Mr. Bruce: We ask this be introduced and marked as Exhibit 8-A.

(Injector diagram attached to Exhibit 8, referred to above, was received in evidence and marked Plaintiff's Exhibit 8-A.) [70]

* * *

Q. (By Mr. Bruce): Now, I call your attention to Exhibit 9, Figure 37, and ask you to explain the structure and operation of the pump system there shown, or the pressure system there shown.

A. What we have here is a pressure system with two discharges, two discharge provisions. One is connected to the pressure tank and the other is available for low pressure, for irrigation, as I have explained it before, for other purposes. Then we have here that same thing applies. We have these openings that an injector can be applied to. Now, see here is the "Berkeley 2-stage shallow well water system."

(Testimony of Candido Jacuzzi.)

Q. You are reading from it?

A. Yes, I am reading from it.

The Court: Well, that explains itself.

The Witness: From the exhibit—— [74]

The Court: It explains itself, Mr. Bruce.

Mr. Bruce: It does.

The Witness: “Convertible deep well——”

The Court: You don’t need to read it.

Q. (By Mr. Bruce): Now, will you convert it as it states there to deep well pumping?

The Court: You are going to put a jet on it?

The Witness: We are going to put a jet on it. And we have a deep well pump (attaching diagram to diagram referred to).

Q. You are putting the same injector system on, or the injector assembly, that you have in Exhibit 5?

A. That’s right. You see, your Honor——

Q. And that converts that to a deep well system?

A. That’s right.

Q. Well, we will—withdraw that.

Mr. Bruce: We ask leave to have this admitted in evidence.

The Witness: May I——

The Court: You let Mr. Bruce do it. You know there is an old saying that no matter how smart an engineer or business man you are, when you try to be your own lawyer you have got a bad client.

The Witness: Well, I was only going to point out——

The Court: Well, let Mr. Bruce do it.

(Testimony of Candido Jacuzzi.)

The Witness: Okeh, I am sorry. [75]

The Clerk: Is that exhibit admitted?

The Court: That is 9-A.

(Jet assembly referred to above, attached to diagram 9, was received in evidence and marked Plaintiff's Exhibit 9-A.)

Q. (By Mr. Bruce): With the injector added, as shown in 9-A—a combination of Exhibits 9 and 9-A—does that function in the same manner as the—I will withdraw the question.

The Witness: Here it is, Mr. Bruce.

The Court: We will take a brief recess at this time.

(Recess.)

Mr. Bruce: May I have the last answer read, Mr. Reporter?

(Record read.)

Q. (By Mr. Bruce): Well, Mr. Jacuzzi, the pump system, or the water system of Exhibit 9 with 9-A attached, has the same mode of operation as the system of Exhibit 3? A. Yes.

Q. Now, Mr. Jacuzzi, in all of these pumps, all of these pump systems, the pump unit, with the exception of Figure 71 and Exhibit 7, employ the same casting, with the same openings?

A. Yes.

Q. Now, referring to Exhibit 4, which is, which represents Figure 1——

(Testimony of Candido Jacuzzi.)

The Court: Exhibit 1.

Mr. Bruce (Continuing): —Exhibit 4, and Figure 1, therefore, which is an enlargement of Figure 1 of the patent drawing, [76] will you describe the structure and mode of operation?

A. Yes. Here we have a pressure system with an injector assembly pump unit. What we have here is a multi-stage pump, which we provide pressure at a lower pressure discharge, medium pressure discharge, and an injector pressure discharge. You will note that on this pump we use all the water that is produced by the highest impeller to operate the injector. This could be one impeller, two, three, four or a dozen impellers above any one of these discharges, in order to create a very, very high pressure, a very high pressure being desirable and needed to lift water from wells where the water level is down, say, a hundred, two hundred, three hundred feet. And it is not desirable, that pressure is not desirable, for a home, because in that case we would have at this point the highest impeller, perhaps 200, 300 pounds pressure, and those pressures are above any limits of our plumbing fixtures in a home. At this point on this pumping system, pressure system, we select to take out the water at the discharge, we select a discharge to give us the pressure in the home that we want to. That pressure may be 20 to 40 pounds. And you will note that this system is self-balancing. At no one of these discharges, whether it is a discharge for ir-

(Testimony of Candido Jacuzzi.)

rigation or a discharge to the pressure tank, or our uppermost, high pressure discharge, to operate our injector, we do not need [77] any mechanical devices to control the flow of water. The flow of water is hydraulically balanced. In other words, what we mean by hydraulically balanced, it means that the water we take out of this pipe or this discharge, here (indicating), is an amount which is not needed for the operation of our injector at the highest pressure. Does that—

Q. When you say that no type of mechanical means is needed—

A. No type of mechanical device or means needed.

Q. What, specifically, do you refer to?

A. Well, any device that would restrict the openings, such as a valve or an automatic valve, or any kind of valve that may restrict these openings, either on discharge, 87, or on discharge here (indicating), 77. There is no valves of any kind needed. The system is, itself, balanced. That doesn't require any attention, once put in operation. It doesn't require any attention by the farmer, or whoever might be the owner of the pump, to watch it, because of receding water levels. It is understood, I am sure, that—

The Court: What you mean is that it hasn't got any mechanical valves, like 83 and 89, on No. 3?

The Witness: That is right, no valves are needed.

(Testimony of Candido Jacuzzi.)

The Court: Is that the only difference?

The Witness: That is one of the differences, yes.

The Court: Well, what other differences? What other mechanical thing is there that you are referring to, besides [78] 83 and 89?

The Witness: I am a little confused now.

The Court: Well, I am not trying to confuse you. I am just trying to find out whether or not the mechanical devices that you have referred to—what are they? There are those designated as 83 and 89 on Exhibit 3, and if there are any others besides that, what are they?

The Witness: Well, I think that is the only difference, your Honor.

Q. (By Mr. Bruce): What do you mean by “self-balancing”?

A. Well, self-balancing, what we mean by self-balancing, means that there is no adjustment—let’s put it that way—there is no adjustment needed in line 87. There is no adjustment needed in line 77. There is no adjustment needed in line—is that 62?

The Court: Yes.

A. (Continuing): I think it is, or 73. There are two numbers.

Q. (By Mr. Bruce): That is in the discharge from the—or, to the jet?

A. In other words, what we mean by adjustment, is to employ any kind of a control valve at any one of these openings, either to control the

(Testimony of Candido Jacuzzi.)

flow of water that would go out of line 87, or to control the flow of water that we take out from line 77, or control the flow of water that we use for the jet. The pump functions in such a way that that is not needed. It all [79] operates by itself.

Q. Now, does this type system possess any advantages from the point of view of installation or maintenance?

A. Definitely. Very much so. Because——

Q. State to the Court the advantages.

A. You see, now, we have here, we have a pump, and we take out from the upper or higher, the highest stage, the highest point of pressure, the water that supplies our jet. Now, on this point here, on 285, Exhibit 3, our water is divided at the highest pressure or part of the—the requirement to operate our injector, it sends down here——

The Court: But that isn't what he asked you.

The Witness: I am sorry, I wanted——

The Court: He wants to know what are the advantages in installation.

Q. (By Mr. Bruce): What advantages in the matter of installation and maintenance does this system have, a self-balancing system?

A. There is no adjustments necessary.

Q. In other words, there being no control valve or mechanical means for constricting?

A. That's right.

Q. Discharge pipes?

A. I was coming to that before, but I am sorry.

(Testimony of Candido Jacuzzi.)

Q. All right, will you state——

A. I was just coming to that point that here we have, we divide [80] our water, and it is necessary that we have a control valve, and what we mean by a control valve, we mean, that means choking the flow of water sufficiently to maintain the necessary volume and pressure to operate our injector. Because we must bring to our injector enough water and pressure to lift the water that we take from the well high enough within the reach of our centrifugal pump.

Q. And that adjustment, the adjustment of that control valve and the setting of it presents a real problem in the installation of the pump?

A. It has been presenting a real problem, especially within the last few years, because of this receding water level conditions that we have in the San Joaquin and Sacramento Valley. Every time that the water level recedes, it requires a new adjustment of the valve, whether it is a control valve or an automatic device to control the flow of the water to operate the injector. And that is something that does not require on pump Figure 1, Exhibit 4, patent 958—that is always self-adjusting, regardless of what the water level fluctuates in the well.

Q. Well, all the pressure in a system of this kind, which is—No, I withdraw the question.

This system, does it not take the full requirements for the operation of the injector and just take that which remains over as delivered to service? [81]

(Testimony of Candido Jacuzzi.)

A. You mean in Figure——

Q. No. A. Figure 1?

Q. No, I mean on Figure 4.

A. What is the question again?

Mr. Bruce: Would you read it, please?

(Record read.)

A. Yes.

Q. (By Mr. Bruce): Does it make a great deal of—does this system have any advantages so far as water levels in the field are concerned, or water levels in the well?

The Court: He just answered that.

The Witness: I answered that question, that it doesn't require any adjustment.

The Court: He says it has the advantage of not having to be adjusted according to the change of water level.

The Witness: There is no valve, there is no adjustment.

Q. (By Mr. Bruce): It is self-adjusting?

A. Self-adjusting.

Q. Now, will you state with respect, calling your attention to Exhibit 5, whether there is any similarity in the mode of operation of the water system shown in Exhibit 5 and Exhibit 4?

Mr. Mellin: If your Honor please, may I make my same objection to that as asking for the conclusion, unless it is a preliminary question to be followed up by precise showing [82] of the similarities?

(Testimony of Candido Jacuzzi.)

The Court: I assume that is what counsel is doing. You may move to strike it if it isn't.

He wants you to point out the similarity between 5 and 4, now. Is that right?

Mr. Bruce: Yes.

The Witness: Between 4 and 5, the similarity there is that in neither case is a control valve required, or any mechanical means to control the flow of water to operate—maybe I am confused here. Just a moment. That's right, see? The flow of water to operate our injector. The injector, there is no mechanical means or valve needed to operate the injector, which will take all the water produced by the second impeller to operate the jet. But the water that comes up from the well to the first impeller first satisfies the amount required by the second impeller to operate the jet, then the surplus water is available to use for pressure system or irrigation, in which case no control valve or any mechanical devices to restrict the flow of water is necessary.

Q. Then you would say that Figure 5, or Exhibit 5, was a self-balancing system?

A. Definitely.

Q. Now, calling your attention to Exhibit 4 on the discharge pipe 89, there is a mechanical contrivance—it looks like 91. Will you explain what that is and point it out [83] to his Honor?

A. 91, it is shown here, is a spigot or a sort of a valve. In other words, the same thing happens

(Testimony of Candido Jacuzzi.)

here that happened, or didn't happen, in the other—that is, we can take this pipe and extend it to any distance, 10 feet, 1000 feet, and it is self-balancing. That means that we have the same pressure in the tank here as we have throughout the system into our injector assembly and so forth. And into this pipe-line, a thousand feet away. So that by just opening that valve, we reduce the pressure in our pressure tank and cause the pressure to start down, and causes the pressure system, the injector system, to become operative again.

The Court: So to that extent it is a mechanical device, isn't it? I say, to that extent it is a mechanical device?

The Witness: This here?

The Court: 91.

The Witness: Well, it is a mechanical device only to the extent that when you want water, you open the valve.

The Court: Well, by that opening up, does that have any effect on the pressure?

The Witness: Well, where you want——

The Court: I see what you mean.

The Witness: Where you want to irrigate on this side, or you want to use it in the home, see, the water that is attached from the home is under pressure.

The Court: What you mean is that in contradistinction [84] to other mechanical devices, which are

(Testimony of Candido Jacuzzi.)

devices for regulating the size of the flow, this is not that kind?

The Witness: This is—this hasn't got any of those.

The Court: All right.

The Witness: And that applies to the same thing over here in Figure——

Q. (By Mr. Bruce): In other words, it is not a control valve?

A. It is not a control valve, no.

Mr. Bruce: Just one moment, your Honor.

(A conversation out of hearing of reporter.)

Q. (By Mr. Bruce): What you have to say, what you have said with respect to Exhibit 5, does that apply with like force to Exhibit 6?

A. Yes.

Q. And to Exhibit 7? A. Yes.

Q. Now, where you feed the jet or injector assembly from the same source that you take a supply of water, I understood you to say that it was always necessary to use some control?

A. Definitely. There is no other way that the pump can operate, because we have to have pressure on this line when the injector, when the discharge is connected to the highest pressure. It is necessary to have a control valve or a device to control the flow of water, because we have to restrict that flow of water in order to maintain the necessary pressure and volume to operate [85] our injector. You see, our injector here, the velocity of the nozzle must

(Testimony of Candido Jacuzzi.)

have sufficient power or push to lift your foot valve and bring additional water in and lift it within reach of the centrifugal pump, you see, because that is the only way you can keep the system in operation.

Q. Now, Exhibit 9, with 9-A attached——

A. Let's see if I can follow you.

Q. ——shows it is necessary to install a control valve?

A. Definitely, definitely. You must have a control valve.

Q. Is there a control valve shown there?

A. Now in terms of a control valve, that we know, that we use in the field to control the pressure, the system, there is no valve there that we call a control valve, like a control valve that is used to tamper with——

The Court: What is that?

The Reporter: To tamper with.

The Witness: It is very important.

The Court: I wish you wouldn't, Mr. Jacuzzi, make all these speeches. It is too difficult for me to follow. You get involved in long discussions of things. This isn't clear to me. I can't see why you need a control valve on No. 9 any more than on No. 5. What is the difference?

The Witness: Well, the difference is this, your Honor, that on No. 9 the water that we are talking about, that we are taking out to be used in our pressure tank, is taken out [86] at the highest pressure.

(Testimony of Candido Jacuzzi.)

Whereas in No. 5 the water that we are taking out for the tank is at the lowest pressure. And you will notice that the high pressure there is no—the high pressure, we feed the injector only, see? Over here at the high pressure we are taking out for the injector and at the same time for the pressure system.

The Court: Well, then, when you say that according to the design in 9 you do need a mechanical device—is that what you mean?

The Witness: Oh, definitely.

The Court: So in that respect it is not the same as Exhibit 4?

The Witness: It is the same as 3. [87]

Q. (By Mr. Bruce): But is the mechanical constriction there adequate for a control valve?

A. In terms of some people, no, because—do you want me to give you an explanation?

Q. What is this Venturi-shaped part which I will mark 13? What is the purpose of that system as shown?

A. That is used only when the pump is used as shallow well system, and that is——

Q. When it is used as a system such as is shown in Exhibit 9, without any injector assembly?

A. That's right. That is used to inject, to bring air, because the pressure provided by the centrifugal pump at the point when the pump starts is much greater at this point than it is on this side or in the tank. Therefore it creates this restriction here at

(Testimony of Candido Jacuzzi.)

that point of the velocity of water, water that goes through fast. And it creates a vacuum on this black line here, and it opens an air intake at this point and causes air to be brought in, to bring in air and feed our tank. Each tank, each water system, is necessary to have some kind of a device to pump in air, because the water itself, it will in time absorb all the air that we have in the tank and cause the tank to become water-logged.

Mr. Mellin: If your Honor please, may I move to strike that answer on the ground that it is not part of the controversy here and it is merely a part of the systems that have been known [88] for some 20 years.

The Court: Well, I don't quite get the relevancy of the answer.

Mr. Bruce: It is relevant——

The Court: Having a very poor mechanical mind, I cannot follow when these answers are so long and discursive; but it seems to me that there could be an answer that would be right on the nose, in the language of the street.

The Witness: It is almost——

Mr. Bruce: We will make it clear, if I may, for your Honor.

The Court: You might ask some specific questions that I can follow better.

Q. (By Mr. Bruce): Mr. Jacuzzi, referring to Exhibit 4, the discharge from the top impeller leads into a chamber, 62, which passes down to pipe 23?

(Testimony of Candido Jacuzzi.)

A. Correct.

Q. All the water discharged from the impeller at the top stage is directed towards the jet?

A. That's right.

Q. Is that right? A. That's right.

Q. Now, then, if you took away the plug out of the casting at the point of highest pressure and let the water, let the pressure go out there or discharge there, would you get enough water, enough pressure to operate the jet? [89] A. No.

Q. The only way that you could do that would be to have a mechanical constriction in here?

A. Correct.

Q. In the discharge passages as shown in Exhibit 3, that is, 59? A. That's right.

Q. So that you could control the amount of pressure going to the jet and also keep the pressure to the jet to the full requirement?

A. That's right.

Q. Opening the valve, 59, to draw off only that excess which was not needed to operate the jet?

A. That's correct.

The Court: Now, may I ask a question, if it won't interfere with your examination?

Mr. Bruce: Certainly.

The Court: The plan described in Exhibit 4 is not usable in the case of every type of installation of a pump? If you are going to use the pump, for example, and equipment in the manner described in Exhibit 9, you can't use it according to the method

(Testimony of Candido Jacuzzi.)

set forth in Exhibit 4, because there you have to have a mechanical means; is that right, or have I made myself clear? [90]

A. On 9 you have to have a control valve.

The Court: So that you can't make available this method as described in 4 in every case, can you?

A. No.

Q. Am I correct about that? You said a moment ago, Mr. Jacuzzi, that No. 4 was an improved method, because there you have got something that did not have to have any mechanical means of control, is that right?

A. That is right.

Q. But if you still use a pump such as you say the Berkeley people used, and as shown in Exhibit 9, you can't make use of that system; you have to have a mechanical device there?

A. On No. 9, yes, as we have on No. 3.

Q. (By Mr. Bruce): Perhaps if you would tell the Court, Mr. Jacuzzi, or describe how you install a pressure system and the adjustment of the control valve, it might clarify the matter to the Court.

The Court: How long is that going to take?

The Witness: I will make it very brief, your Honor.

Q. (By Mr. Bruce): Describe it with reference to Exhibit 3. That is a control valve.

A. The first thing to do——

Q. Make it brief, Mr. Jacuzzi.

A. I will make it brief.

(Testimony of Candido Jacuzzi.)

The Court: I do not mean to be unkind about that. [91]

Mr. Bruce: I think this question may clarify some things to your Honor.

The Witness: The first thing we do, we install an injector in the well with two lines of pipe coming clear up to the surface, and then what we do, we either screw the pipes into the pump by unions or flanges, and we connect our pressure tank into our pump and it discharges here, a lower pressure discharge. And then what we do, we fill up all these passages marked in blue—that is water that is filled up to this point of this valve. We close the valve. The valve is closed when the pump is primed. Then we start our water. The moment we start the water, the impellers turn around, and assuming the installation is made perfect then we get the maximum pressure—with the valve closed, we get the maximum pressure of the pressure gauge. At that point we adjust this valve. The moment we commence opening those valves a stream of water will flow out in the direction of the pressure tank, and at the same time in the direction of the injector. We open the valve until we have reached—until the pressure has dropped to the point that it is necessary to operate the injector. At that point we can see the pump is adjusted for operation, and we continue to flow a stream of water into the tank until we have a desired pressure in the tank, which can be 20 to 40 pounds, or greater or lower. At the same time if

(Testimony of Candido Jacuzzi.)

we want to select or desire a lower pressure of discharge, we have the discharge here, the [92] adjustment of this valve, and this valve substantially work together, we will say, because we must continue at all times a stream of water in the direction of our injector. It is necessary to lead the water from the well within reach of our centrifugal pump, which you will notice the intake is point 71.

Q. What happens when you open the valve too wide when you are making that adjustment?

A. The moment this valve is opened too wide, this is what happens: We do not have sufficient pressure in this line to operate our injector. In other words, there is not enough water and pressure coming down through this line and not through the nozzle to lift the water that comes in from the well, to lift it within reach of the pump.

The Court: You have gone over this before. There has been testimony on this before as to how that works. I got that part of it.

By Mr. Bruce: Just answer this yes or no.

Q. If you open it too wide will the pump lose its prime? A. The pump loses its prime.

The Court: For the reason there is too much water going into the tank, is that right?

A. Yes.

Mr. Mellin: May I ask one question, your Honor?

Q. And when you once adjust that valve, it stays that way until the well condition changes due to a drop in the pressure, you [93] do

(Testimony of Candido Jacuzzi.)

not have to change it any more for the same well conditions?

A. Occasionally it is necessary that readjustments be made.

Q. If the water table drops?

A. No, for several reasons. The water table has nothing to do—for such a reason as the valve, assuming we are pumping sand, abrasives, then a stream of water going through the valve has a tendency to wear out the valve or dig a bigger hole into the valve. That means a repeated adjustment because we have worn out a bigger hole through the valve.

Q. (By Mr. Bruce): All those adjustments are eliminated in the structure of Exhibit 4?

A. That is right.

The Court: Mr. Bruce, I have made an appointment at 4:30 today, so we will have to adjourn a little bit earlier and try to make up for it tomorrow.

(Thereupon an adjournment was taken until tomorrow, Thursday, May 12, 1949, at 10:00 o'clock a.m.) [94]

Thursday, May 12, 1949, 10:00 o'clock A.M.

The Clerk: Jacuzzi Bros. vs. Berkeley Pump Company.

Mr. Bruce: Ready.

Mr. Mellin: Ready.

Mr. Bruce: At this time, your Honor, I would like to read into the record the stipulation of the defendants and plaintiffs of January 20, 1949:

“It is hereby stipulated and agreed by and between plaintiff and defendants in the above-entitled action through their respective counsel that all of said defendants prior to the commencement of this action, and subsequent to the issuance of Letters Patent No. 2,344,958, here in suit, and that said defendant Berkeley Pump Company, a corporation, prior to the commencement of this action, and subsequent to the issuance of Letters Patent No. 2,424,285, also here in suit, within the Northern District of California, Southern Division, have or has made and sold to others pumps and pump systems in all respects like the pump and pump systems illustrated and described in Exhibits A, B, C, D, and E of Defendants’ interrogatories filed herein on or about the 25th day of June, 1948.”

Dated January 20, 1949, and signed by attorneys for the plaintiff and attorneys for the defendant. [95]

Mr. Mellin, you will stipulate, will you not, that the exhibits 5 through 9 are the pumps and pump systems or illustrations of the exhibits referred to, or enlargements of the exhibit referred to in the stipulation just read?

Mr. Mellin: They are the same minus the colors.

Mr. Bruce: Minus the colors. I just want to make one point to clear the record. We had no stipulation with respect to 9-A. I mean that is immaterial because those systems were also sold, to complete the matter, so there is no issue that we did not make and sell systems referred to in those exhibits.

CANDIDO JACUZZI

recalled as a witness on behalf of plaintiff; previously sworn.

Direct Examination
(Resumed)

By Mr. Bruce:

Q. Mr. Jacuzzi, I call your attention to Exhibit 4, which is Figure 1 of patent 958, and ask you if in your 25 years of experience, or at any time before the water system there illustrated was first manufactured by your company, had you ever seen or heard of a water system of the injector type in which the entire output of the highest stage of a multi-stage pump unit was used to supply the injector? A. No.

Q. Yesterday his Honor asked you whether the only difference between the two patents in suit was that in 958 you eliminated the control valve, your answer to which I believe was "Yes." [96] To the extent that you have just stated there is that additional difference?

A. Yes, the additional difference is that all the water from the highest pressure is directed to the injector.

Q. Do you wish to change your answer made yesterday to that extent? A. That is right.

Q. Was the fact that the delivery, this whole delivery of the highest stage of the pump to the injector, did that make possible the elimination of the control valve? A. Yes.

(Testimony of Candido Jacuzzi.)

Q. And in the elimination of that I believe you testified that that gave you a self-balancing system?

A. Yes.

Q. 100 per cent? A. 100 per cent.

Q. And in the installation of such a system, the installation was simplified? A. Definitely.

Q. All you had to do was to set the system in operation without any adjustments, whatsoever?

A. None whatsoever.

Mr. Bruce: Mr. Mellin, have you in court the original notice, the letter from Jacuzzi Brothers to the Berkeley Pump Company? [97]

Mr. Mellin: I do not have it, but we will stipulate that they gave us written notice, your Honor, so there is no issue there.

Mr. Mellin: We will offer in evidence the copy of letter of October 7, 1947, to Berkeley Pump Company, from C. Jacuzzi, General Manager of the plaintiff, and ask that that be marked Exhibit 10.

The Court: Very well.

(The document referred to was thereupon received in evidence and marked Plaintiff's Exhibit 10.)

Mr. Bruce: Your witness.

Cross-Examination

By Mr. Mellin:

Q. By the way, Mr. Jacuzzi, you are familiar with the earlier systems manufactured by your company, aren't you, earlier water systems?

(Testimony of Candido Jacuzzi.)

A. Yes.

Q. Pressure systems? A. Yes.

Q. And you are also familiar with the various patents that you have? A. Substantially.

Q. And you recall that prior to 1940 you produced a water system in which there was a low-pressure taken-off at what would correspond to the suction line from the jet into the centrifugal pump? [98]

A. What was the question again, Mr. Mellin?

Q. In one of those earlier systems or earlier patents you recall that the Jacuzzi Brothers showed a low-pressure discharge from the suction line which led from the jet into the intake of the centrifugal pump, do you not?

A. From the suction line, yes.

Q. That is the low-pressure discharge from the system?

A. That is the low-pressure discharge from the suction line.

Q. That water goes out of there under the influence of the suction of the centrifugal pump and under the influence of the pressure imparted to it by the jet? A. What is the question again?

(Question read.)

A. It goes out through the influence of the pump unit.

Q. And discharged? I mean it is pumped out. I am not trying to trick you, Mr. Jacuzzi. The Court would not allow me, in the first place.

(Testimony of Candido Jacuzzi.)

A. Give me a chance to think.

Q. I beg your pardon. I thought you did not understand.

A. It is discharged, yes.

Q. Did the Jacuzzi Company build such systems?

A. Yes.

Q. And in that system you also employed a jet, didn't you?

A. In that system we also employed an injector assembly.

Q. That is what I call a jet. [99]

A. We call this part an injector assembly.

Q. All right, we will call it an injector assembly. How is the water pumped back to that injector assembly, Mr. Jacuzzi?

A. The water to the injector assembly is pumped by the pump unit.

Q. The centrifugal pump unit?

A. The pump unit.

Q. That is under the influence of both the injector assembly and the centrifugal pump?

A. No, it is only under the influence—that the injector operates is only under the influence of the pump unit, because if it was not for the pump unit, the injector would not operate.

Q. All right. Then there is a higher pressure discharge from the pumping system down to the jet?

A. Yes.

Q. Therefore, all of the discharge of the higher

(Testimony of Candido Jacuzzi.)

pressure stages of the pump or stage, singular, went back to the ejector assembly, is that not so?

A. Not all of it.

Q. Where did the rest go?

A. I beg your pardon. You are talking about the early patent now?

Q. Whatever you are talking about, the one you built.

The Court: He wants to know whether you are referring to earlier systems. [100]

Mr. Mellin: That is right.

The Witness: The earlier system.

Q. (By Mr. Mellin): Yes.

A. The answer to that is no, not all the water was directed down to the injector. There was always made provision for water to come out through the discharge of the pump, so as to either operate a pressure system or for other purpose. My recollection is we never did install a pump, that all the water from the discharge of the pump was used to operate a jet.

Q. So then, as I understand it, you had a pressure tank system to the high-pressure outlet of the pumping system and a low-pressure discharge from the suction line, from the injector assembly, is that correct?

A. I didn't get the question. It is too long. Make it short.

(Question read.)

(Testimony of Candido Jacuzzi.)

By Mr. Mellin: I will reframe the question and divide it up.

Q. As I understand it, you had first a low-pressure discharge from the suction line to the pump, is that correct?

A. We had a suction discharge on the suction line of the pump.

Q. For discharge?

A. On the suction line of the system.

Q. For a low-pressure discharge?

A. For a low-pressure discharge, yes.

Q. And then you had a high-pressure discharge from the pump?

A. Then we had a high-pressure discharge at the same time on the system. [101]

Q. And that went to a pressure tank?

A. That went to a pressure tank.

Q. And then you had a jet assembly?

A. We had an injector assembly.

Q. And part of the water that came through the centrifugal pump went back to the jet assembly?

A. Yes.

Q. That was all prior to 1940, the system that you are speaking of?

A. Yes. However, I would like at this time to explain the operation of that system, if I may.

Q. You will have ample opportunity, Mr. Jacuzzi, but just answer the questions and your counsel will bring out that matter if I do not. I show you an enlarged drawing of what appears to be a pumping unit consisting of a centrifugal pump,

(Testimony of Candido Jacuzzi.)

it is so marked, and a jet pump, which is so marked, and which you call an injector assembly.

A. It is called an injector assembly.

Mr. Mellin: I will mark that drawing for identification as Defendant's Exhibit A.

(The drawing referred to was thereupon marked Defendant's Exhibit A for Identification.)

Q. (By Mr. Mellin): You are familiar with that system, so far as it is illustrated there, Mr. Jacuzzi? A. Substantially, yes. [102]

Q. And that was a system that, except for precise details of mechanical constructions, was built and used long prior to 1940? A. Yes.

Q. And the motor I will mark "Motor." That is correct, isn't it? A. Yes.

Q. On that system there was a pressure system, wasn't there, connected to the high-pressure discharge?

A. It was used with a high-pressure tank.

Q. I will draw the pressure tank in and mark that "pressure tank" and the valve that I designate, that would be a control valve? A. Correct.

Q. And there was also an automatic switch in those systems, was there not? A. Yes.

Q. Which I have indicated correctly?

A. No, you should have your wires from the switch to the motor.

Q. I beg your pardon.

(Testimony of Candido Jacuzzi.)

A. That is correct.

Q. When the pressure in this tank dropped, the motor went into operation, and the pump operated, isn't that correct? A. Yes.

Q. And at what pressure it started operating would depend upon the setting of the switch?

A. That is right. [103]

Q. And when the motor operated there was a circuit established from the jet up through the suction line into the first stage of the centrifugal pump, into the second, into the third, and then it would be divided, part of it going into the pressure tank and part of it down to the jet, isn't that correct? A. Yes, sir.

Q. That is substantially the system, and there was a take-off of the suction line, isn't that correct?

A. That is a system which we did occasionally take off a discharge on the suction line. Just a minute. I am twisted. The suction line is on this side.

Q. You actually took it off after the jet, didn't you? A. That is right, I was confused.

Q. Do I draw this correctly when I draw it in? Is that correct the way I have it drawn with pencil and cross hatched, approximately?

A. That is not the low-pressure discharge. It is the suction line discharge.

Q. But it is a low-pressure discharge?

A. It is a suction line discharge.

Q. It is at low pressure, though?

(Testimony of Candido Jacuzzi.)

A. On the suction pipe, yes.

Q. So there you had the water from the jet pump or ejector assembly, part of it going out of this discharge, which I marked "B" and part of it going into the first stage of [104] the centrifugal pump, is that correct?

A. The question again, please?

(Question read.)

A. I don't understand the question. It is not clear to me. I am sorry.

Q. I'm awfully sorry. I will try to make it so. In the operation of the pump, when the pump is in operation, water comes up and under the influence of the jet, comes up and part of it discharges through the discharge B?

A. Well, the injector has no influence of itself, unless it is operated by the pump unit. In other words, the pump, with the impellers 1, 2, and 3, is what makes the injector function. The injector, by itself, will not operate without the aid of the pump unit.

Q. Let us start that again. Water is pumped from the highest stage of the centrifugal pump down to operate the jet, is that correct?

A. That is correct.

Q. And then as the water comes up to enter the centrifugal pump, some of that water under low pressure is discharged at B, is that correct?

A. Through the influence of the pumping unit on the surface, yes.

(Testimony of Candido Jacuzzi.)

Q. And some of the water is then discharged at B at low pressure? A. I said yes.

Q. And some of the water is divided after it leaves the last [105] stage, part of it going into the pressure tank and the remainder going down to operate the jet?

A. If I have the question, correct. I hope I had it right.

Q. I think you have, Mr. Jacuzzi. So that prior to 1940 that pumping system was in use as we have described it? A. Yes.

Q. What would be the difference, Mr. Jacuzzi, if in the event that you moved B up to the first stage of the operation of the pump other than a raise in pressure of the water?

A. That is where it makes a lot of difference.

Q. That is a difference I want to know.

A. When we take water from the first or second stage, it will never lose the prime of the pump. If we take water out of here through the suction line, what we have to do, the lifting of the water will have to be done entirely by the injector. In other words, the water at high pressure over here has to have sufficient water, or check down this valve and have sufficient water here to raise the other water that comes in from the well, not within the reach of our centrifugal pump, which is 20 or 25 feet away, but practically to the first impeller of the pump unit. However, when we put the discharge stage on the pump unit, then we utilized the ability

(Testimony of Candido Jacuzzi.)

of the pump, that is, the suction end of the pump to raise the water this 20 or 25 feet, because if we were to do it in this particular case, we are creating at this point what we call a sub-atmospheric [106] condition, you see——

Q. It would be sub-atmospheric——

A. Excuse me. May I finish?

Mr. Gray: Let him finish his answer.

Q. (By Mr. Mellin): Go ahead. I was trying to shorten it, counsel.

A. You create a sub-atmospheric condition at this point, and that, with fluctuation of the water level in the well, it will cause air to enter at that point. The moment you cause a sub-atmospheric condition air will enter and it will enter through the impellers and cause the pump to lose its prime. That is something that will not happen when you use the discharge of the first or second stage.

Q. However, the net result would be, other than that, that this first stage take-off would be at a higher pressure than would be taken off at B; that is correct, isn't it?

A. Not necessarily.

Q. As a matter of fact, Mr. Jacuzzi, the jet characteristic can be changed by determination of the jet pressure to raise the water directly into the centrifugal pump; is that not so?

A. It is not practical. It has never been done. In fact, when we discovered this system in our patents, to take the water out of the first, second or third stages, whatever the case may be, this sys-

(Testimony of Candido Jacuzzi.)

tem was no longer used, because it is inefficient. You see, this system here will not give you the performance, and [107] is apt to give you a lot of trouble because it needs a lot of attention, you see. It is done that way for purposes: If you want to clear a well out of sand. But it is not practical. In fact, we do not use it any more.

Q. As a matter of fact, Mr. Jacuzzi, isn't it a fact that under certain well conditions, including depth, when you want to irrigate, isn't a system such as shown in A, with the addition of B, the the most efficient for that purpose?

A. The question again?

Q. For a particular purpose? Strike it out. I will reword it. Taking a system precisely as shown in A, as we have been discussing, with a low-pressure discharge at B, for some well conditions, isn't that the most efficient and more efficient operation than if you took it off of one of the stages of the pump? A. No.

Q. And isn't it a fact also that under other well conditions it is more efficient to take it off the second stage than it is the first stage?

A. The question again?

Q. Isn't it more efficient in a system of this kind under certain well conditions and the head to which you are pumping, to take it off the second stage than the first stage? A. You see——

Q. Can you answer the question "Yes" or "No" and then explain? [108]

(Testimony of Candido Jacuzzi.)

A. No. You see, your question is confusing. What we do when we take water out from the first or second stage, we are changing the mode of operation of the entire pumping unit. It no longer operates as it shows in here, because all the water here is brought to the surface or to the highest impeller and then divided to operate an injector for a pressure system, but in this case over here we do not, you see. Only the water that we use here at low pressure is taken out at this point, and that water is not brought up through these impellers at a high pressure with wasting of the power—in other words, to operate the injector pressure system.

Q. You did not quite get my question, Mr. Jacuzzi. I asked you isn't it a fact that under different well conditions and different service requirements the pump may operate more efficiently at, let us say, in Exhibit 3 with the low pressure discharge, say at the fourth impeller or at the fourth stage, rather than the second?

A. More efficiently?

Q. Yes, under certain conditions.

A. You mean we operate more efficiently at this point than it would at this point?

Q. Under certain conditions, yes, the whole system.

A. Depending on what purpose you wanted to use it.

Q. That is correct. Different circumstances make

(Testimony of Candido Jacuzzi.)

the pump more efficient at different stages of take-off? [109]

A. I think that is right. However, in this case, we are changing the mode of operation. The mode of operation is no longer as shown in your Figure 8.

Q. I understand what you say is a change of mode of operation, but when you change the low pressure discharge in Figure 3 from the second to the third stage, you do not change the mode of operation, do you?

A. What was that question?

Q. When you change the low-pressure discharge from the second stage to the third stage, you do not change your mode of operation, do you?

A. Yes.

Q. That is still a different mode of operation, is that correct?

A. That changes the mode of operation, because instead of taking it out at this point, we are bringing it up higher.

Q. The only difference is that you get a different pressure of the low pressure discharge?

A. You mean you are getting a different pressure once you are bringing it up here on an upper stage.

Q. That is right, you get a higher pressure on the upper one?

A. Higher pressure.

Q. So you can select the pressure of the low-pressure discharge at any one from the first to the last stage?

A. Yes. [110]

(Testimony of Candido Jacuzzi.)

Q. And when you make those changes, you do not change the mode of operation of the system, do you? A. Yes.

Q. You do. Each one is a change in mode of operation of the system? A. Yes.

Q. Referring back again to Exhibit A, there is in effect four pumps in that system, isn't there?

A. No.

Q. How many are there? A. One.

Q. Just one pump? A. One pumping unit.

Q. I am not talking about unit.

A. One injector assembly — you see, this is a pump, what we refer to as a pump. It is a pump unit at the surface, connected by means of this connector connecting the impellers all together. This is an injector assembly. In order to have this injector to function——

Q. We understand how it functions. I am not asking that. I am only asking the simple question, is this one pump? Is a multiple-stage pump considered strictly as one pump? A. Yes.

Q. How about Exhibit 3? Is that one pump, or more than one pump? [111]

A. It is one pump unit.

Q. Let us confine ourselves to the centrifugal pump. Is that one pump, or more than one pump?

(Testimony of Candido Jacuzzi.)

A. You mean the assembly?

Q. Yes.

A. It is a centrifugal pump.

Q. Is it one pump, or are there as many pumps as there are stages?

A. It is a centrifugal pump of the multi-stage type.

Q. Let us get the answer precisely. Wouldn't you say each stage is a pump in itself?

A. No, not in the sense of the word as it is in here, because a stage by itself, Mr. Mellin——

Q. Pardon me. Just a minute.

A. A stage by itself, Mr. Mellin, will not operate unless it is made into a pump, because we can take any one of these stages put the castings on each side, and it is not a pump.

Q. You have in a sense a case for each stage, haven't you?

A. No, we have a by-pass between one stage and another.

Q. So you would say, then, in patent 285 there is not a low pressure pump and a high-pressure pump?

A. There is a low-pressure discharge and a high-pressure discharge.

Q. I would like you to answer this question precisely: Is there a low-pressure pump and a high-pressure pump shown in [112] Figure 3 in Exhibit 3 of patent 285?

(Testimony of Candido Jacuzzi.)

A. This is a——

Q. Would you answer the question directly? I have a real reason for asking it, and then you may explain.

(Question read.)

A. No.

Q. Then if the patent, itself, in 285 calls that a centrifugal pump comprising a low-pressure pump and a high-pressure pump, to that extent it is in error, isn't it?

A. I couldn't say. I don't know anything about patents.

Q. You just testified——

A. You see——

Q. Just a minute, Mr. Jacuzzi. You just testified that that does not show a low-pressure and a high-pressure pump. If the patent says it does show a low-pressure and a high-pressure pump, to that extent the patent is wrong?

Mr. Gray: Just a minute. To which we object on the ground it is argumentative. The patent speaks for itself.

The Court: I think that is right. The patent speaks for itself.

Q. (By Mr. Mellin): Is the injector assembly not a jet pump and so known in the industry?

A. The injector, itself, is not considered a pump, because in order to make an injector operate, you have to have hydraulic pressure. What we mean

(Testimony of Candido Jacuzzi.)

by "hydraulic pressure" is water. It is not operated — in other words, you can use city water pressure or pressure from a fall in the mountains to operate an injector. In this case we are operating an injector by reason of a centrifugal pump unit at the surface. You cannot consider the centrifugal pump, in itself, because if you stop the pump unit on the surface, the injector would no longer function.

Q. I appreciate that, and if you did not have a motor on the centrifugal pump, it would not work, either?

A. That is right, but the centrifugal pump is what operates the injector.

Q. I understand that, but you have heard of injector assemblies in common parlance of the trade called a jet pump. That is what it is known as, is it not?

A. What we call a jet pump, we mean a jet pump (indicating). You see, there are two combinations here, jet and a pump. The jet is the part that is in the bottom of the well. The pump is the part that is at the surface. So we call it a jet-pump.

Mr. Mellin: I would like to offer in evidence Exhibit A to illustrate the witness' testimony.

The Court: So ordered.

(Defendant's Exhibit A For Identification was thereupon received in evidence.)

Q. (By Mr. Mellin): Let us take the system

(Testimony of Candido Jacuzzi.)

shown in Exhibit A, as we have modified it in pencil. The minute that the [114] motor stops operating, the pressure in the whole system equalizes, doesn't it, Mr. Jacuzzi? A. Yes.

Q. When you draw water off of the system, when you draw water from the system out of B, that lowers the pressure in the tank, doesn't it? You can draw water out of B without the pump being in operation, can't you?

A. Which was the question?

Q. I will put it again. I am sorry. I do not mean to confuse you. A. I know.

Q. Assuming the pump is not in operation and the tank is full, if you open the discharge B there will be a flow of water from the pressure tank through the control valve, through the centrifugal pump, and out at B, wouldn't there?

A. Can I have the question again?

(Question read.)

A. Yes.

Q. So that you would get an equalization of pressure in the system by opening the discharge B?

A. Yes.

Q. Just precisely as you spoke of equalization of pressure in the other system yesterday?

A. No.

Q. Tell us the difference. [115]

A. The difference is in this system, here we ob-

(Testimony of Candido Jacuzzi.)

tain the pressure equalization through an intermediate discharge stage of the pump unit, not through a discharge between the injector and the pump unit in the suction pipe, as you have illustrated there on Exhibit A.

Q. But in both instances you equalize the pressure in the system?

A. I would say so.

Q. In that one, in Exhibit 3, you equalize it through an intermediate stage, an intermediate or low-pressure discharge, and here you equalize it through a discharge in the suction? A. Yes.

Q. So that if this pipe from B were laid a thousand feet away, as you described yesterday, and you opened the valve, there would be immediate equalization of pressure through the system?

A. As I described yesterday. I described a thousand feet away from the system.

Q. I understand that.

A. However, it is not practical, and with that system the efficiency of the pump at this point is considerably less than at the point of discharge, at the upper stage, whereas in this other case the point of efficiency is more.

Q. I am talking solely about equalization, Mr. Jacuzzi. A. I answered that question.

Q. What? [116]

A. I answered that question.

(Testimony of Candido Jacuzzi.)

Q. I am afraid you did not. You answered it in your way. Let us answer it in mine. If you have a pipe connected to the discharge B, and you open the valve, the pressure in the system from the tank will equalize in the whole system?

A. I have never seen pumps installed that way. I guess it will equalize. It is not practical, as I stated before, to install pumps taking the water out for irrigation through a discharge that will give you less water than through a discharge that will give you more water.

Q. Let us take your system. Would it be practical when the motor is not in operation to take the low-pressure water, to take water from the tank down through the pump and out through the low-pressure discharge for irrigation?

A. Through here?

Q. Yes, when the motor is not in operation.

A. Yes, the moment you open the faucet or the spigot, the valve or whatever it may be, you cause the pump to start.

Q. But not until the pressure in the tank is lowered beyond the lower limit the switch is set at, is that right?

A. That is right.

Q. Let us take Exhibit 3. Yesterday I think we were a little bit confused. You said when you opened the valve on the line 8 in Exhibit 3 the pressure in the system immediately equalized; is that true? [117]

(Testimony of Candido Jacuzzi.)

Mr. Bruce: That is objected to.

The Witness: It is equalized——

Mr. Bruce: That is objected to because that is not the testimony.

Mr. Mellin: I am asking him.

A. No, it was not.

Q. (By Mr. Mellin): Is it true or is it not true?

A. Give me the question again.

Q. As I understood your testimony, and correct me if I am wrong, I understood you to say yesterday that when you opened the valve 83 in line 81, that is the low-pressure discharge, fluid would flow from the tank 58 back through the pump and equalize the fluid pressure in the whole system?

A. It is equalized at the point where the pump is not running. That is my point — when the pump is not running.

Q. When the pump is not running?

A. When the whole pressure system is at a standstill, then pressure equalization occurs. However, the moment you open this valve, then you are releasing the pressure. You are releasing the pressure over the whole system.

Q. That is correct.

A. Until you are bringing the pressure down to 20 pounds, or whatever it may be, and your pump will start.

Q. That is correct, but first, if the switch is set for 20 pounds to start, and you have 40 pounds in the tank 58, and you [118] open valve 83, there will

(Testimony of Candido Jacuzzi.)

be a flow of water toward the tank 58 and out through the low-pressure system for a period of time until the pressure in the tank gets to 20 pounds, at which time the motor will start?

A. That is right.

Q. Wouldn't that be precisely true of the system shown in Exhibit A as we have drawn it in pencil?

A. No, you see in Exhibit A we are taking the water from the suction pipe of the pipe and not from an intermediate stage, so here you have a different cycle of the water. [118a]

The water will have to come back through all the stages, through the suction pipe and then through the discharge, so we do not have the same cycle of operation that we have over there.

Q. Over there that water has to come down one, two, three, four, five stages before it reaches the low pressure discharges; it is only a matter of how far it has to go?

A. No, no. Here we have a different system. You see, here it is coming through a suction pipe.

Q. I understand.

A. This is the suction pipe.

Q. Yes, it is full of water at all times, isn't it?

A. The suction pipe as well as everything else.

Q. And the pump.

A. Over there we are not taking the water out through the suction pipe.

Q. I understand that.

(Testimony of Candido Jacuzzi.)

A. We are taking it out through an intermediate stage.

Q. All right. Except for taking it out through an intermediate stage, and taking it out from the suction, there is the same direction of flow of water to equalize the pressure in the system in both, isn't there? Let me go back over that. In A, when the water from the pressure tank will flow through the control valve, through the three stages and down through the suction inlet of the centrifugal pump—

A. Down to the suction pipe. [119]

Q. Down to B. A. Yes.

Q. And then it will discharge, won't it? It will discharge through B if B is open?

A. I assume so.

Q. The minute the pressure in the tank comes below the limit set by the switch, the motor will start again, won't it? A. That is right.

Q. And operate the pump. In Exhibit 3, if you open the valve 83, there will be a flow from the tank 58 down through the first, second, third, fourth and fifth stages and out through the low pressure pipe 81, until the pressure in the tank is reduced to the poundage set by the switch, and then the motor will go into operation?

A. That is true, but there are two modes of operation.

Q. All right, the difference is one comes out of

(Testimony of Candido Jacuzzi.)

an intermediate stage, and in this one it comes out of the suction pipe. That is the difference?

A. That is one of the differences.

Q. Did you have any experience with ordinary centrifugal pumps during your pumping experience?

A. I consider it quite a bit.

Q. You, of course, have known of ordinary centrifugal pumps in which they have a discharge from an early stage and discharge from the final stage?

A. What was the question?

Q. You have during your experience seen ordinary multi-stage centrifugal pumps in which there was a discharge from an early stage in the pump and then another discharge from the final stage of the pump?

A. No.

Q. You have never seen such a pump?

A. Never seen one.

Q. Speaking of yesterday, you were referring to Exhibit 4, which is the drawing of Patent 958; you stated that no mechanical devices were necessary in the intermediate discharge of the pump. Did you have in mind anything other than a control valve?

A. Well, any devices of any kind that are not needed. You see, the system is so balanced hydraulically, you no longer need the necessity of any control valve or other mechanical devices employed to do the same thing.

(Testimony of Candido Jacuzzi.)

Q. The purpose of these control valves and other mechanical devices is to create a back pressure in the pump, isn't it?

A. What is the question again?

(Question read.)

A. Yes, on an injector pump perhaps of this type here.

Q. For the purpose of illustration, let us take Exhibit 9, which has a restricted throat, which you have marked 13, and because you have restricted the diameter of that throat you have to build up considerable pressure in the pump before it goes [121] into the tank; that is, you slow it down. You retard the flow to the tank, is that correct?

A. Yes. The purpose of this is, as the practical literature states, as an air aspirator, as we call it; however, the restriction could be designed to operate instead of a control valve. That is why I used the word yesterday "or other mechanical devices."

Q. In other words, you want to offer resistance to the fluid going out of the pump.

A. That is right. You have got to adjust the flow of water necessary to operate your injector so that at all times you have enough pressure there to lift the water within the reach of your centrifugal pump.

Q. So that is the reason for control valve or restriction is to offer resistance to the water discharging from the pump so as to build up a pressure?

(Testimony of Candido Jacuzzi.)

A. Yes.

Q. Does it make any difference as to how you build up that resistance, whether you do it by a control valve or some other medium?

A. The most practical way I know of is a control valve or a mechanical device especially designed for a given installation.

Q. Let us take Exhibit 6. You said that that had no control valves or other mechanical devices to resist the discharge of water through the low pressure connection. Did I understand you [122] correctly?

A. I didn't understand you.

(Question read.)

A. That is right.

Q. By the way, Exhibit 6 shows the low pressure connected to a pressure tank, doesn't it?

A. Yes.

Q. When pressure is built up in that tank, that will offer resistance, won't it, to the flow of fluid from the low pressure discharge into the tank?

A. What will offer resistance?

Q. I beg your pardon?

A. What would offer—

Q. Pressure in the tank. You are pumping against that pressure, aren't you?

A. Pumping against the pressure in the tank?

The Court: You are pumping against the pressure in the tank, aren't you?

A. Well, naturally.

(Testimony of Candido Jacuzzi.)

Q. (By Mr. Mellin): So that would offer a resistance, wouldn't it?

A. As an enclosed tank, yes.

Q. That is what they usually are. So the higher the pressure in the pressure tank, the greater the resistance to the discharge of fluid, isn't that correct?

A. Yes.

Q. So actually there is a medium in Exhibit 6 for exhausting the flow of fluid out of the pressure system, isn't that correct?

A. Yes, but it is not needed.

Q. I am not asking whether it is needed or not; I am asking you if it is there.

A. I am telling you it is not needed.

Q. You are saying it is not needed, Mr. Jacuzzi. Let us disconnect the tank in Exhibit 6. Remove the valve and this plug. Then you would have atmospheric pressure in this chamber, which I mark "chamber." Then you would have atmospheric pressure in that chamber, wouldn't you?

A. Only to that section above your impeller, or I would say to that section here (indicating). Let me explain it, please.

Q. I did not mean to interrupt you.

A. You have atmospheric pressure only at this point substantially.

Q. May I draw a dotted line?

A. Please. So that we continue here a flow, the intake of our impeller. We continue our flow of

(Testimony of Candido Jacuzzi.)

water into the intake to meet the requirements of that impeller to operate our jet. It always flows in there. The surplus water that we lift from the well then is discharged freely, whether you take this union, this valve, this tank or anything along that line.

Q. Then you would have, as I understand you, in the same [124] chamber, you can have two different fluid pressures, disregarding the difference in the hydrostatic head; you mean, you can have one pressure at A, which would be atmospheric, and a higher pressure at B? A. No the same.

Q. Then I didn't understand you correct.

A. The same pressure.

Q. It is the same pressure and that would be atmospheric?

A. No—well, substantially.

Q. Let us say substantially atmospheric pressure.

A. If this does not offer resistance, then you have substantial atmospheric pressure.

Q. If you remove the valve and the connection to the casting——

A. You would have water coming out while the pump is in operation, yes.

Q. And there would be no resistance?

A. Well, whatever resistance you have on the opening.

Q. Just that resistance. Then you would have substantially atmospheric pressure in there wouldn't you?

(Testimony of Candido Jacuzzi.)

A. No, you have the resistance of the flow.

Q. Does it make any difference how you provide that resistance whether by the design of the diameter of that opening or by some adjustable opening other than a practical reason?

A. May I have that question again?

(Question read.) [125]

Mr. Mellin: Strike the question.

Q. Wouldn't that offer the same kind of resistance to the flow out of the diameter of the opening as is offered by the opening through a control valve? Isn't it the same in kind of resistance?

A. No.

Q. It is different in kind? A. Yes.

Q. Tell me the difference.

A. In this particular case, you do not need a control valve.

Q. You are not answering the question.

A. On a conventional type or this type over here, you do need a control valve.

Q. I understand.

A. This is the one that operates without a control valve, and you may disconnect, as we have discussed over there, you may disconnect the opening here, 87, and the pump will still operate.

Mr. Mellin: May I move to strike the answer, Your Honor, as unresponsive?

The Witness: I think it is responsive.

(Testimony of Candido Jacuzzi.)

Mr. Mellin: I asked him if the type of restriction offered by a control valve was the same type of resistance offered by a small opening in the casting, and he answered how the other devices worked, and I think it is completely unresponsive. [126]

The Court: It may go out.

Q. (By Mr. Mellin): A control valve essentially always has an opening through it, doesn't it?

A. It could be closed.

Q. I mean in operation it has to have an opening through it?

A. If you want to pump any water through it you must have an opening.

Q. So in the control valve, what you actually do is to vary the effective area through which the water can pass; isn't that what it does?

A. The question again?

(Question read.)

A. No, the control valve is used for the adjustment, so that we maintain at that point the necessary head of pressure to operate our jet.

Q. In other words, it is some medium for making the diameter of the opening, which I am now marking with an arrow and marking X, to vary the diameter of the opening, which I marked X, that would be the functioning of a control valve, wouldn't it?

A. To reduce the diameter of the discharge at the high pressure given by your multi-stage pump, to

(Testimony of Candido Jacuzzi.)

operate so that you maintain sufficient water volume pressure to operate an injector.

Q. Let us get back to the question. The purpose of a control valve——

The Court: Why do you have to elaborate on that, Mr. Mellin? [127] That is obvious to me. The trouble is the witness always wants to argue about the application of the matter to this case. Of course, everybody knows that that is what a control valve is for.

Mr. Mellin: All right, Your Honor.

Q. Would you say, then, that the resistance in the pressure tank in Exhibit 6 wouldn't be effective to raise the pressure in the chamber of the pump there shown above atmospheric?

A. You mean the pressure inside the tank?

Q. Yes.

A. As we are pumping in the tank, whether or not it will increase the pressure at your first discharge stage?

Q. Yes. A. Yes.

Q. Yesterday in referring to Exhibits 4 and 3, which are drawings of the patents in suit, you testified particularly with reference to 958 in Exhibit 4, that no mechanical devices were necessary in that system to restrict the flow through the pipe of discharge 81 or the discharge 89, is that correct?

A. I said that no mechanical device is needed, that the system is hydraulically balanced in itself and does not need it. However, I could elaborate.

(Testimony of Candido Jacuzzi.)

Q. You do not have to.

A. As the pump pumps into the pressure tank, the pressure is raised. [128]

Q. And that creates a back pressure?

A. And you are creating a back pressure but not a restriction.

Q. Not a restriction?

A. No, but a back pressure.

Q. You create a back pressure, which is the purpose of the control valve?

A. You are creating a back pressure and not a restriction.

Q. In both patents in suit, the one reason you do not have to have a restriction or any back pressure, as I understand it, is for the reason that at the stage of the impeller, at which you take off low pressure, you so mechanically construct that stage that you positively divide the water between the low pressure outlet and that which is directed to the next higher stage, isn't that correct?

A. I will have to get that question again.

(Question read.)

A. The stage is built in such a way as to discharge the water at a higher point substantially than the intake of the preceding impeller, so as to maintain a flow. It doesn't supply it, in other words.

Q. (By Mr. Mellin): I hand you Exhibits 1 and 2, and I call your attention to Figure 2 of Pa-

(Testimony of Candido Jacuzzi.)

tent 958, and I call your attention to Figure 3 of 285, which figures, by the way, are identical, and ask you if that does not show a mechanical structure for discharging part of the water to the low pressure discharge [129] and part of the water to the intake of the next succeeding stage in the pump.

A. You are getting me into patents now.

Q. No, I am referring you to the drawings.

A. I am not a draftsman myself. I am a practical man in the field.

Q. I do not intend to talk about patents.

A. You are asking me to explain drawings that I do not thoroughly understand.

Q. Let us disregard the drawings. You were glib yesterday in your understanding of the operation of the pump.

Mr. Gray: If your Honor please, I move to strike the remarks of counsel as argumentative.

The Court: They may go out.

Q. (By Mr. Mellin): Isn't it a fact, Mr. Jacuzzi, that in the pumps shown in Exhibits 3 and 4, which are Patents 958 and 285, that at the stage which discharges the low pressure, it is so mechanically constructed that part of the water is positively directed to the discharge and part of the water is positively directed to the intake of the next stage?

A. No it is not a fact. It is not so constructed. The stage that we take the water out is constructed inside identically the same as any other stage pre-

(Testimony of Candido Jacuzzi.)

ceding or underneath. We have added to that stage a discharge so the water can be drawn off at that point. We have discovered that water can be drawn off at [130] that point without starving the preceding impellers above. We can draw water at this point without starving the impellers to supply and operate the injector and pressure system. That is a discovery we have made.

Q. Then it is your testimony that in the patent in suit there is no mechanical means for dividing the water, that is, mechanical means in the low pressure stage from which you are going to discharge—for dividing the water, diverting positively part of it through the low pressure discharge and positively diverting the other part to the intake of the succeeding stage?

A. I do not know what you mean.

(Question read.)

A. The question is not clear to me, Mr. Mellin.

Q. (By Mr. Mellin): I will refer you precisely to Exhibit 4 and precisely to Exhibit 3 and I will point to the stage of the centrifugal pump, which is in alignment with the low pressure discharge 75. You understand that. Is there any mechanical means built in that stage which positively divides the water so that part of it must go to 75 and part of it must go to the intake of the next succeeding stage in the pump?

A. Yes.

Q. There is?

A. We have here what we call a bypass. In

(Testimony of Candido Jacuzzi.)

other words, the water comes out through this impeller. Part of it finds its way through the guide veins into the succeeding impeller, so that [131] we have the necessary amount of water to operate our injector and pressure system. Part of it, that we do not need for that purpose, is available for your low pressure discharge.

Q. Isn't the construction of the vein, that stage of the pump which is associated with the discharge 75, differently constructed than any of the other stages of the pump in Exhibit 3?

A. Only to the extent of the discharge opening.

Q. No other change?

A. Not that I know of.

Mr. Mellin: Your Honor, I am going to move to strike all the testimony of this witness pertaining to these two patents on the ground it is very evident from the patent itself that the witness does not know how the patent structure operates.

The Witness: I——

Mr. Mellin: Just a moment. I am arguing to the Court, Mr. Jacuzzi.

The Witness: I am sorry.

Mr. Mellin: I will show to the Court there is not only a drawing in the exhibit and each of these patents that shows a mechanical division of the water at that stage, and that stage is particularly and especially constructed to divide the water between the low pressure discharge and the suction of the next stage—the patent not only shows that,

(Testimony of Candido Jacuzzi.)

but provides if it does not have it, it will not operate.

The Court: Mr. Mellin, isn't that what the witness in [132] effect said?

Mr. Mellin: No, he said all stages were alike, and they are not alike. They can't be alike.

The Court: Does that amount to anything more than going to the weight of the testimony of the witness?

Mr. Mellin: I will withdraw the matter, if that is the way Your Honor might consider it.

The Court: It is very difficult on the strength of one answer that a witness makes to strike out all of his testimony on an argumentative basis, for a reason that does not pertain to the admissibility of the testimony. You can't strike out the testimony of a witness because he may say something different from what somebody else says or some other document shows. All that you create there is a conflict which the Court has to resolve on the considerations that have to do with the weight of the testimony. You can't strike it out unless it is because the witness is not qualified, unless it develops the witness is not qualified to give testimony, or it is inadmissible for some other reason.

Mr. Mellin: My point was, Your Honor, that he testified that he understood the construction and operation of the two patented pumps extremely well, and speaking for the patents and comparing other devices——

(Testimony of Candido Jacuzzi.)

The Court: Of course, these matters are really matters that have to do with the explanation of the patents in suit. [133]

Mr. Mellin: That is right.

The Court: It might have a bearing, I suppose, on the matter of infringement.

Mr. Mellin: It would go strictly to his qualifications to compare the alleged infringing structures with the patents in suit.

The Court: Only to the extent that it bears upon the weight of his testimony.

Mr. Mellin: I think perhaps Your Honor is right. We will withdraw it.

The Court: We will take a brief recess at this time.

(Recess.) [134]

The Witness: Before we proceed, I would like to make a correction.

The Court: The witness says he wants to correct something.

Mr. Mellin: That is all right.

The Witness: On my statement of this pressure equalization. When I was questioned, when he questioned me on that, he was building up the system as we were going along, and I had in mind a system we have been using for years, in which a check valve is between the pump and the pressure tank. Therefore it wouldn't be pressure equalization on Frank Jacuzzi's.

(Testimony of Candido Jacuzzi.)

Q. (By Mr. Mellin): But without the check valve, the equalization would be as we discussed it; without that check valve the pressure equalization would be as we discussed it? A. Yes.

Q. All right. Now, referring again to Exhibit 3, 285, and assuming that I understood your testimony that each of the centrifugal stages were identically alike and each of ordinary centrifugal pump construction, would that device function as you have previously described it here?

A. You mean that water can be drawn from the lower stage?

Q. Yes, the stages are so constructed that whether you take it out from one or the other, it would function? In other words, all of the stages, if all of the stages are alike and ordinary centrifugal pump practice is employed in the design of the impellers and the casing for the impellers, the pump, such as in [135] 285, would function as you have heretofore described it to the Court?

A. I don't quite get you, Mr. Mellin.

Mr. Mellin: Would you read it to him?

(Record read.)

A. What do you mean by "centrifugal pump practice?"

Q. Ordinary standard centrifugal pump design.

A. I still don't understand the question.

Q. Do you know what a standard centrifugal pump design is?

(Testimony of Candido Jacuzzi.)

A. Well, there is many different ways of making centrifugal pumps.

Q. Well, let's take any one of them that is standard.

The Court: Well, the trouble with that kind of question is, you ask him if it is as he has described it, and that is so broad that it may present difficulties.

Mr. Mellin: I understand, Judge. May I go at it another way, Your Honor?

The Court: Very well.

Q. (By Mr. Mellin): All of the stages of the centrifugal pump portion of the system shown in 285 are of the same construction and design, is that correct? A. Yes, sir.

Q. And if that is true, then the pump operates just as you have described it without any special construction of any one stage?

A. That's right, other than to provide the selective opening, [136] selective stages.

Q. You mean selective openings—that is, nozzle 75 and the takeoff at the high pressure discharge?

A. I didn't understand that.

Q. You talked about selective openings. You mean by that—— A. Where is nozzle 75?

Q. The low pressure takeoff, 75, and the high pressure takeoff, through valve 59 or 57; that is what you meant by selective openings, isn't it?

And by the way, the construction of the various stages of the pump in both patents, 285 and 958 are the same, are they not? A. Yes.

(Testimony of Candido Jacuzzi.)

Mr. Mellin: By the way, I have no answer to the last question. Would you read it?

The Reporter: "The low pressure takeoff, 75, and the high pressure takeoff, through valve 59 or 57; that is what you meant by selective openings, isn't it?"

Q. (By Mr. Mellin): Selective openings?

A. Yes.

Q. Now, you have examined the defendant's various pumps which you have testified to?

A. Yes.

Q. And there is nothing extraordinary—I mean, the runner design is more or less conventional, isn't it?

A. I would say so, yes. [137]

Q. And the design of the casing is conventional?

A. What do you mean by conventional? Do you mean by that——

Q. Well, ordinary volute type.

A. You mean this is the same as this and this is the same as that (indicating)?

Q. No, let's confine ourselves just to the centrifugal parts. The runners are more or less conventional in design, each of them, taken separately?

A. I was looking at the picture—looking at it, I would say so.

Q. And the chamber in which they operate, taken separately—they are each of conventional design?

A. I would say so.

Q. Now, the structural difference between the pump shown in 958, Exhibit 4, and 285, Exhibit 3, is that in 958 the discharge is at the next to highest stage?

A. It shows there, yes.

(Testimony of Candido Jacuzzi.)

Q. Whereas in Exhibit 3 it is at the highest stage?

A. Yes. However, in this case here, of 958, and we can put as many stages as required for different conditions.

Q. I appreciate that.

A. To meet different conditions.

Q. Yes. In other words, if you took the connection, plugged the nozzle 57 in Exhibit 3 and made the connection at the next to the last stage indicated by numeral 39 on Exhibit 3, instead of at the last stage, then you would have what is shown in 958?

A. Yes.

Mr. Bruce: Will you read that last to me, please? I didn't hear it very well.

(Previous question read.)

The Witness: Will you read it again for me?

The Reporter: "Q. Yes. In other words, if you took the connection, plugged the nozzle"—

The Witness: Nozzle? Is that what you meant?

(Indicating on diagram.)

Q. (By Mr. Mellin): Nozzle or discharge opening. A. From the discharge opening——

Q. 57. A. 57.

Q. Now, Mr. Jacuzzi, I would like to call your attention to Exhibit 9, and as illustrated there, there isn't any jet, is there, or ejector assembly? Is that correct?

A. The openings for the jet or injector assembly are available if you want to put an injector on.

(Testimony of Candido Jacuzzi.)

Q. I understand that, but I am going to take this system precisely as shown, as illustrated, with the plugs in the openings just as illustrated. You understand that Berkeley Pump sells that unit just as it is, without any modifications? You understand that?

A. Yes, I understand that.

Q. All right. Now let's confine ourselves to just what is [139] shown. Now, just what is shown there? Isn't that precisely the same in mode of operation as water pressure systems that have been built for, well, at least 20 years, except in particular details of design? I mean, as far as the mode of operation is concerned?

A. As far as the mode of operation, as it is shown here, assuming that this opening is not there, and this opening is not there, it is old, very old?

Q. Very old? A. Yes.

Q. In other words, I want that assumption the openings are plugged. Those are plugs shown?

A. No, those plugs, that is an opening there that can be plugged.

Q. And the drawing shows the opening plugged?

A. The drawing shows the opening plugged, yes, but it also tells you how to do it, to convert it to a deep well pump.

Q. All right. But with the openings, 6 and the opening 6-A, plugged as shown, the structure shown in Exhibit 9 is at least 15 years old, isn't it, if not older?

(Testimony of Candido Jacuzzi.)

A. With the exception of the openings, yes.

Q. Yes. Well, I have to get an answer.

Mr. Bruce: I think you got one.

Mr. Gray: He said, "Yes, with the exception of the openings."

Mr. Mellin: All right, no openings. [140]

Mr. Gray: Well, we will stipulate that the plugs are in on the picture.

The Witness: The plug is there because there is an opening. That is the reason the plug is there.

Q. (By Mr. Mellin): All right. Now, let's—

A. However, I would say that if the pump was made, perhaps like this (indicating), with a solid casting there, that the plug wouldn't be there.

Q. (By Mr. Mellin): All right, that's kind of arguing a difference between a bump and a lump, isn't it?

A. No, that is not argument.

(Conversation among counsel out of hearing of Reporter.)

Q. (By Mr. Mellin): Now, I have added to Exhibit 9 Exhibit 9-A which adds the jet.

A. That is the injector assembly, yes.

Q. And the opening which is plugged, and No. 6, and it remains plugged for the purpose of my question—there is no opening there, it is closed. Now, taking it precisely that way, isn't that structure in mode of operation extremely old?

A. What was the question again, Mr. Mellin?

(Testimony of Candido Jacuzzi.)

Mr. Mellin: He will read it for you.

(Question read.)

A. If the opening wasn't there, I would say yes.

Q. So when the plug is in, it is extremely old?

A. No, because the opening is still there. You see, I can't [141] concede an opening when it is plugged. I mean, I can see there is not an opening there, but it is plugged.

The Court: Well, let's not waste time on this. You are arguing over inconsequential matters. I can see that. I don't have to have that gone into.

Mr. Mellin: Yes.

Q. So that even when you add the jet, it was old, taking your assumptions?

A. If that opening was there, I would say so.

Q. Yes. Now, in both instances, when we say extremely old, we mean it was produced prior to 1940?

A. What do you mean, in both instances?

Q. Well, I mean, where I have left the jet on and where I have put the jet on. All other assumptions remaining the same. Let's see if I can put it more concisely, Mr. Jacuzzi.

As I understand your testimony, assuming that the openings are plugged——

A. No, I never said that. I said that the opening is still there even though it is plugged. It is available. The plug is there always for the purpose. It is available to take out the discharge, the low pressure discharge at any time you want to.

(Testimony of Candido Jacuzzi.)

The Court: Yes, I understand all that, Mr. Jacuzzi, but can't you answer this so we can get through with this? Forget about the fact that you can take the plug out. When it is in, and it is a closed area, then it is an old device if it is operated [142] that way?

The Witness: Your Honor, yes, if it is built this way (indicating).

The Court: Well, I understand. The trouble is that the witness wants to argue the case all the time, and I know what the point is. I am neither hard of hearing or so mentally defective that I can't get what you are arguing about. But if the opening is closed and the pump is operated with a completely closed surface there, then it is the same in manner of operation as was in effect in the old days?

The Witness: Yes.

The Court: All right. Now, go ahead, counsel.

Q. (By Mr. Mellin): Both with and without the jet?

(No response.)

Mr. Mellin: I withdraw it.

The Court: Well, it is obvious.

Mr. Mellin: Yes.

The Court: So far as physical fact is concerned, it is obvious. I am not attempting to indicate what the legal effect of what you are talking about is, but the physical fact is very obvious.

(Testimony of Candido Jacuzzi.)

Q. (By Mr. Mellin): I would like to call your attention to Exhibit 7 with the Exhibit 7-A attached, and I would like to ask you one question, and in that I am going to make an assumption that the plug from the intermediate stage is removed and the pipe [143] connection connected to it. Do you understand what I mean? Now I am going to your opening. A. Take it easy.

Q. All right.

Mr. Gray: Mr. Mellin, would you mention the number of the intermediate stage, so that there won't be any confusion? They are all numbered.

Q. (By Mr. Mellin): Which is the intermediate stage, Mr. Jacuzzi? A. No. 10.

Mr. Gray: That refers to the plug, I guess.

Mr. Mellin: No. 10 is the intermediate.

The Witness: This is the first stage, No. 9; No. 10 is the second stage, and the third stage is your——

Q. (By Mr. Mellin): I will mark the second stage. Have I marked it correctly? A. Yes.

Q. Now, if you remove the plug 10 and connect that to a discharge line, would the pump operate efficiently under normal circumstances without a back pressure resistance in that discharge?

A. It will operate.

Q. Will it operate sufficiently efficiently that you can use it commercially?

A. I never investigated the efficiency of the Berkeley pumps. But it will operate. [144]

Q. It would operate? A. Yes, sir.

(Testimony of Candido Jacuzzi.)

Q. Under all pumping conditions?

A. Well, also assuming that this is open, Mr. Mellin.

Q. Yes, that is shown open. It will operate under all pumping conditions without a control valve or the equivalent of a control valve?

A. Well, all pumping conditions—you are taking in a lot of territory.

Q. Under what conditions wouldn't it operate?

A. As I stated before, I am not familiar with the Berkeley pumps. I never did check the efficiency of the Berkeley pumps, of the control of water they pump under different openings, whether it is this opening or opening 10 or opening 9.

Q. So it is, as a matter of fact—withdraw that.

As a matter of fact, you don't know whether it would operate sufficiently efficiently to be commercial or not?

A. I don't—I am not familiar with the Berkeley pump to that extent.

Q. All right. Now, as shown in Exhibit 7, there is a low pressure discharge at 9, is that correct?

A. Yes.

Q. And it does not have a second discharge shown either at 10 or 11?

A. No, but there is a provision, of course, there. [145]

Q. Yes, all right. So that in that respect it does not include two discharges at stages below the last stage, does it, as shown in Exhibit 4?

The Court: Mr. Mellin, isn't that argumenta-

(Testimony of Candido Jacuzzi.)

tive? There seems to be no necessity of any testimony of this kind or arguing with the witness about it. Can't that be presented by argument of counsel?

Mr. Mellin: I think probably it could.

The Court: That is what I referred to yesterday.

Mr. Mellin: I know you did, Your Honor.

The Court: All you do is to get into an argument with the witness. And when you go into that phase of the matter, I have never found it to be of any help to me at all, because I would much rather hear what the lawyers who are skilled in these matters have to say about it, than to listen to the argument about it between the lawyer on one side and the witness on the other side, as to the meaning of these things, because they are after all perfectly argumentative in their nature.

Mr. Mellin: Well, the only reason at all I went into it, Your Honor, was that yesterday he went into a very great detail about the mode of operation of these as compared with the mode of operation of that and I just wanted to point out that while he says they are both the same, cross-examination proved them different. But I am perfectly willing to argue the matter later, Your Honor. [146]

Q. Just one question, Mr. Jacuzzi. I am going to ask your opinion, if you don't mind, and with the indulgence of the Court. With an ordinary centrifugal—Strike the question.

That is all.

(Testimony of Candido Jacuzzi.)

Mr. Gray: May we have a recess at this time, if Your Honor please?

The Court: You mean until this afternoon?

Mr. Gray: Yes. [147]

* * *

Mr. Mellin: If Your Honor please, one of our contentions is that there is a different mode of operation, and I would like to suggest that they make out their case, because they haven't shown that yet.

Mr. Gray: Well, then, that being the case, if Your Honor please, I think we would like to call Mr. Armstrong, the chief engineer for Jacuzzi Bros. He can testify very briefly on the subject.

Mr. Mellin: How long will it take? I have a witness, as I told the Court yesterday, who is on the other side of the Bay and——

The Court: Well, you are not prepared to put Mr. Armstrong on now?

Mr. Gray: Well, we would like to, inasmuch as it is only five minutes to go, to have the recess if we could. But I make this suggestion to counsel: I think if you had your witness here around 3:00 o'clock at the recess, that would be pretty close to the time.

The Court: Well, we will start in at a quarter of two and that will give you time to get your man and perhaps you had [148] better have your witness here then so he can go on this afternoon after this witness is finished.

Mr. Mellin: All right, Your Honor.

(Testimony of Candido Jacuzzi.)

The Court: We will recess until a quarter of two. [148-A]

Afternoon Session, May 12, 1949

Mr. Mellin: If the Court please, may I have the court's permission to ask Mr. Jacuzzi one more question?

The Court: Very well.

CANDIDO JACUZZI

recalled; previously sworn.

Cross-Examination

(Resumed)

By Mr. Mellin:

Q. Mr. Jacuzzi, just one more question. Referring to the diagram or drawing A, the only thing that is necessary to convert that system as now drawn on the diagram to the pumping system of 285 is to move the discharge that I have labeled B from the suction pipe to one of the intermediate stages for discharge, one of the intermediate stages of the centrifugal pump?

A. I didn't get the question.

Mr. Mellin: I will go over it.

Q. The only thing that is necessary to convert the pumping system as drawn on Exhibit A——

A. You mean with the pressure tank, the pressure switch, the control valve?

Q. Yes, the motor, the centrifugal pump, the injector assembly, and to convert that to the as-

(Testimony of Candido Jacuzzi.)

sembly, or to the system, of 285, would be to move the discharge outlet B from the suction pipe [149] as shown on A up to either the first or the second stages of the centrifugal pump?

A. Yes, but when you do that, you change the mode of operation of the entire system.

Mr. Mellin: That is all.

Redirect Examination

By Mr. Bruce:

Q. In your testimony this morning with respect to defendant's Exhibit A, you made reference to a water system which you had manufactured, and I will show you a catalog, No. 142 of 1941, and calling your attention to Fig. 27-B on page 27 of the catalog, I will ask you if that is a water system which you had reference to (handing to witness).

A. Yes.

Mr. Bruce: We will offer in evidence the catalog 142.

The Clerk: Exhibit 11.

(Catalog referred to was received in evidence and marked Plaintiff's Exhibit 11.)

The Clerk: Are you offering it whole, the whole catalog?

Mr. Bruce: Yes.

That is all.

Mr. Mellin: No further questions.

Mr. Bruce: Now, we will call Mr. Armstrong. [150]

JOHN E. ARMSTRONG

called as a witness on behalf of plaintiff; sworn.

The Clerk: Will you state your name?

A. John E. Armstrong.

Direct Examination

By Mr. Bruce:

Q. Your name is John E. Armstrong?

A. Yes, sir.

Q. And you are secretary and chief engineer of the plaintiff, Jacuzzi Bros., Inc.?

A. Assistant secretary and chief engineer.

Q. And how long have you held that position, Mr. Armstrong?

A. That of chief engineer, since 1941.

Q. And prior to that time you were employed by the same company? A. Yes.

Q. How long were you so employed?

A. Since the early part of 1937.

Q. And what have been your duties?

A. Since I have been—Well, all my duties were primarily with reference to the engineering department, designing pumps, operation of pumps, installation of pumps, and since becoming chief engineer it has also been the supervision of several engineers working on design and installation of pumps, and water systems.

Q. Pumps and water systems, pressure systems embodying the [151] injector system?

A. Yes.

(Testimony of John E. Armstrong.)

Q. Prior to that time did you have any experience in connection with pumps?

A. Yes, when I was a boy going to school, why, I worked in several mills in Nevada in which pumps were extensively, and I gained considerable experience in maintenance and operation at that time.

Q. You attended the University of Nevada in the School of Engineering? A. Yes.

Q. And since that time you have supplemented your study with other reading of various books relating to pumps?

A. Relating to pumps, also studying under Rachele Jacuzzi and Mr. Piccardo and other pumping engineers.

Q. You are the John E. Armstrong who is one of the joint inventors named in the patent 285?

A. Yes.

Q. Now, calling your attention to the exhibit—And you sat in the courtroom during the testimony yesterday, didn't you? A. Yes.

Q. Calling your attention to the exhibits 5 through 9, illustrating the water systems of the Berkeley Pump Company, you are familiar with those system, aren't you? A. Yes. [152]

Q. You have actually seen the actual pump?

A. Yes.

Q. And the system? A. Yes.

Q. Now, then, would you compare—withdraw that.

(Testimony of John E. Armstrong.)

Calling your attention specifically to Exhibit 5, I will ask you if the water system shown there embodies the inventive concept of your patent 285.

Mr. Mellin: I object to that, your Honor, as calling for the functions of the court as to whether it embodies the inventive concept, or not.

The Court: I am afraid so. If he answers that "Yes," then he is going to decide the case, isn't he?

Mr. Bruce: Well, we asked the question in that way, your Honor, because Mr. Mellin in his examination of this witness on his deposition followed the same procedure.

The Court: Well, you can't adopt the mistakes of someone else and make them good that way.

Mr. Bruce: Well, that may be.

Q. Well, referring to Exhibit 5, does the water system as shown there or illustrated in that exhibit embody the same mode of operation as is shown in the structure of Exhibit 3? [153]

* * *

Q. (By Mr. Bruce): Will you answer the question?

A. Will you read it, please?

(Previous question read by the reporter.)

A. Yes.

Q. Now, will you explain to the court how that is accomplished in the illustration of Exhibit 5?

A. Well, water from the first stage is discharged

(Testimony of John E. Armstrong.)

to service, which is similar to the water from the first stage being discharged to service in Exhibit 5. The balance of the water being brought up to a higher pressure to operate the jet in both cases.

Q. All right, will you follow through on the comparison, please? A. I don't understand it.

The Court: Well, he has covered it, hasn't he?

Mr. Bruce: Virtually, yes.

Q. Now——

The Court: He has covered it and he has the good quality of being brief.

Mr. Bruce: Well, that is very commendable, I think.

Q. Now, referring to the discharge, low-pressure discharge to the pressure line into the tank, is that what appears to be a valve there, is that a control valve (indicating)? [155] A. No.

The Court: Well, there isn't any dispute, is there, about that? Are you referring to No. 5, Exhibit 5?

Mr. Bruce: I don't know—yes, I am referring to 5, where the line leads to. 5 designated in that, the discharge line. And I am asking concerning the valve that appears there. That is not a control——

Q. Is that a control valve? You said it has no function in the system when it is in operation?

A. That's right.

Q. Now, what you have said—no.

Now, with reference to Exhibit 4, Figure 1 of

(Testimony of John E. Armstrong.)

your drawing 958, does the illustration in Figure 5 embody the same mode of operation?

A. Yes, it does.

Q. And will you explain how that is accomplished?

A. Well, water from the first impeller is discharged at low pressure through a valve-free connection to the pressure tank similar to that illustrated in 958, through a valve-free connection into the pressure tank. The high-pressure water being used to drive the jet in both cases.

Q. Now, there is a plug shown at 4, is there not?

A. Yes.

Q. And what is the opening at the plug 4, or the closure used for? [156]

A. That is used to take a high-pressure discharge by using a control valve of a similar nature in 285.

Q. And with the plug removed, does the figure in Exhibit 5 embody any other mode of operation as shown in 285?

A. Yes, that is the pressure equalization feature; that is a discharge on here, which can be located some distance away from the pump, the valve is opened and the water flowing back through the tank drops the pressure and places the system in automatic operation.

Q. Now, if Exhibit 4 was connected to a pressure tank, would a control valve be needed in that discharge from high pressure? A. Yes.

(Testimony of John E. Armstrong.)

Mr. Gray: I don't think you mean Exhibit 4.

Mr. Bruce: Exhibit 5, yes.

Q. Now, by the way, you are the John E. Armstrong who is named as one of the co-inventors in patent 958? A. Yes.

Q. Now, referring to Exhibit 7, or 6, rather—pardon me, here is 6.

The Court: May I ask a question, Counsel, if it won't bother your examination?

Mr. Bruce: Certainly, your Honor.

The Court: Something is not quite clear in my mind.

I understand that what you are saying, Mr. Armstrong, is that if the plug No. 4 is closed in Exhibit 5, the mechanism, [157] pump assembly, performs in the same way as is described in your Exhibit No. 4, and if the plug is opened and the mechanism in 5 is used with the plug open, then it operates substantially the same as in Exhibit 3?

The Witness: Yes.

The Court: Very well.

Mr. Mellin: If your Honor please, may I ask—

Mr. Bruce: Well, if your Honor please—

Mr. Mellin: I just want to clear one thing up. Didn't I understand you also, Mr. Armstrong, to say that when plug 4 is in place, the mode of operation is the same as in both 3 and 4?

The Witness: Yes.

The Court: All right. That makes it clear to me. Go ahead, Mr. Bruce.

(Testimony of John E. Armstrong.)

Q. (By Mr. Bruce): Now, referring to Exhibit 6, the structure there shown, it functions in the same manner, has the same mode of operation, as Exhibit 5? A. Yes.

Q. And it embodies, this figure illustration, embodies the same mode of operation as shown in Exhibit 3? A. Yes.

Q. And as Exhibit 4? A. Yes.

Q. And with the removal of the plug from the high pressure [158] discharge, the point of high pressure discharge—I will call that 14 (marking on diagram)—it functions—and connecting that to, or having a discharge there with a control valve, it functions with the same mode of operation as Exhibit 3, for the purpose of pressure equalization?

A. Yes.

Q. Now, referring to——

The Court: Before you go on with the next question, would you step down a moment? I have a criminal matter that I want to hear at this time.

(Whereupon, following the hearing of another matter by the court, the trial was continued as follows.)

The Court: All right, you may proceed.

Q. (By Mr. Bruce): Now, is it customary when you are using the discharge at high pressure from the opening or plug opening 14, is it customary to use that for the purpose of irrigation?

A. No, not generally.

(Testimony of John E. Armstrong.)

Q. What is the usual practice with pump men?

A. In general——

The Court: You are talking now about the use of Defendant's equipment?

Mr. Bruce: Yes, I am talking about the use of defendant's exhibits 6—5 and 6.

The Court: All right.

A. It could be used for irrigation, but in general the requirements [159] of the pressure system are generally desired at a higher pressure than in your irrigation discharge. But, for example, if 14 was delivering water over a hill that required a high pressure to get the water over the hill, they could take a high-pressure discharge from 14 for irrigation. But, generally speaking, low-pressure is used for irrigation. That is because it delivers more water.

Q. (By Mr. Bruce): Then you would simply switch the position of the pressure tank shown in Exhibits 5 and 6 to the high-pressure side?

A. Yes.

Q. And connect the discharge from the high pressure side; that is, through the opening 14 to the pressure tank?

A. Yes.

Q. And in that case there would be the necessity of a control valve in that line?

A. Yes.

Q. And that for the reason that there is a division of the water, and you have to divide the water to the tank, and yet—I will withdraw that.

(Testimony of John E. Armstrong.)

You would have to see that the needs of the injector system were supplied and take the difference for the customer's use?

A. Yes, where you have a control valve.

Q. Yes. Now, referring to Figure 7—

Mr. Gray: Exhibit 7.

Q. (By Mr. Bruce): Referring to Exhibit 7, does that show a [160] similar system to that shown in Exhibits 5 and 6? A. Yes.

Q. In this case you have an additional stage added in the pump unit, have you not?

A. Yes.

Q. Now, with reference to the patent 285, the structure there shown, does Exhibit 7 have the same mode of operation? A. Yes.

Q. And in the same manner as you explained with reference to Exhibits 5 and 6? A. Yes.

Q. And would you have the same thing to say as to Exhibit 4, patent 958? A. Yes.

Q. There is no injector shown on that, is there, Mr. Armstrong?

A. Not shown. However, the passages are not plugged, and the arrows indicate that an injector is intended for use with that pump.

Q. That is illustrated in the Exhibit 7-A, attached thereto? A. Yes.

Q. Now calling your attention—withdraw that. Does Exhibit 7 have the same mode of operation as shown in patent 958? A. Yes. [161]

Q. Now, referring to Exhibit 8, we will remove

(Testimony of John E. Armstrong.)

the overlay 8-A from it. That is a shallow well installation, isn't it? A. As shown, yes.

Q. Yes. But it is adapted, with the provision here for the installation, as a deep well installation, isn't it? A. Yes.

Q. Does that embody the same mode of operation as in patent 285?

A. Yes, one of the modes of operation.

Mr. Bruce: Pardon me, your Honor.

(Conversation among counsel out of hearing of the reporter.)

Q. (By Mr. Bruce): That is, it would involve the same mode of operation with the injector assembly attached as shown in Exhibit 8-A?

A. I don't think that question was completed, was it?

Q. Well, in other words, do you have to install—I will withdraw that.

In what way does Exhibit 8 embody the mode of operation of the structure of patent 285?

A. In that the low-pressure discharge is in pressure communication with the tank, so that the opening of the valve or a spigot on the discharge of 12 would draw the water from the tank to a low pressure, say 20 pounds, where the pressure switch would place the unit in operation. [162]

Q. In other words, that feature of the mode of operation of 285 is shown in Exhibit 8?

A. Yes.

(Testimony of John E. Armstrong.)

Q. And with the installation of the injector assembly, does it embody another feature of the mode of operation of Exhibit 3, of the patent 285?

A. Yes.

Q. Will you explain to the court the mode of operation now?

A. Water from the jet is taken into the first impeller, whereby it discharges into this chamber and has a low-pressure discharge, while the water in the low-pressure chamber comes through this second impeller and at a higher pressure divides and goes into the pressure tank and to the jet.

Q. Now, with reference to Exhibit 4, and in comparison, does Exhibit 8, with the over-lay embody the same mode of operation? A. Yes.

Q. And will you point that out, the mode of operation that is the same?

A. It has a valve-free discharge at low pressure with the high pressure being used to drive the injector.

Q. Wherever you take the pressure from the last, the stage of highest pressure, and you discharge to service, do you need a control valve?

A. Yes, or some other means of mechanically restricting the [163] flow.

Q. Now, with reference to Exhibit 9, that illustrates a shallow well installation, doesn't it?

A. Yes.

Q. And it is convertible to a deep well installation by the application of the injector system?

(Testimony of John E. Armstrong.)

A. Yes.

Q. And it is convertible to a deep well installation by the application of the injector system?

A. Yes.

Q. And the plug which is marked here, apparently, 6-A, is for that purpose, is it not?

A. Yes.

Q. Now, as illustrated there, is the mode of operation—does the mode of operation embody the same mode of operation as Exhibit 3, or would you have to remove a plug?

A. You would have to remove the plug, 6.

Q. And which plug would you remove?

A. No. 6.

Q. No. 6. That is the plug from the low-pressure discharge of the pump unit?

A. Yes. Well, you could remove—Yes.

Q. And that is the customary way of operating this system, isn't it?

A. Yes, it is shown by Exhibit 8. [164]

The Court: Well, if you were using No. 9 and the plugs were closed, where do you get the water for use, out of the tank?

The Witness: Yes, this is a shallow well pump, then, discharging from the point of highest pressure into the tank.

The Court: And then for use, you have to take the water out of the tank?

The Witness: Yes, your Honor, and in all of these there is assumed to be another opening on

(Testimony of John E. Armstrong.)

the tank which goes to the house or other service requirements.

The Court: All right.

Q. (By Mr. Bruce): Now, you say it is adapted for the attachment of the injector assembly, which is shown in the overlay, Exhibit 9-A? A. Yes.

The Court: If you wanted to use 9 without 9-A for irrigation purposes, how would you do it? Or would you use it at all for irrigation purposes?

The Witness: Yes.

The Court: I mean, without opening the plug.

The Witness: Oh, you could draw water from the tank for irrigation purposes, but it would be water at a higher pressure, and it would reduce the pressure in your tank. In other words, one of the important features of these pumps here is that when you are discharging at low pressure for [165] irrigation, these upper impellers or this upper impeller maintains enough water in the pressure tank so that the housewife in the house always has water for her domestic uses.

The Court: But if you use the water from the tank for irrigation purposes, then you couldn't accomplish that, is that what you mean?

The Witness: No. Then you would have a large pipe, a large opening, and the water pressure might drop down so that it wouldn't go into the house.

The Court: I see. All right.

Q. (By Mr. Bruce): Now, does Exhibit 9 em-

(Testimony of John E. Armstrong.)

body the same mode of operation as that illustrated in Exhibit 4 of patent 958?

A. Not without the plug being removed.

Q. The plug—you mean the plug—which plug are you referring to?

A. No. 6, the low-pressure discharge.

Q. No. 6. And would you—withdraw that.

Will you point that similar mode of operation out on the illustration, Mr. Armstrong?

A. Water coming from the injector through the first impeller enters this chamber, where it has the design to mechanically divide, and part of the water discharges at low pressure through the low-pressure irrigation service. The balance of the water discharging to the injector, and then this discharge could be without a control valve. [166]

Q. But used with the injector there, you would have to have a control valve in the high-pressure discharge? A. Yes.

Q. I believe it. Now, then, in installing pump systems such as illustrated in Exhibit 3, 285, what is one of the real problems that you have in installations, where you divide the pressure for the jet and to service?

A. The adjustment of the control valve presents a considerable problem in many instances.

Q. And will you tell what some of those problems are?

A. Well, the adjustment of the control valve varies as the water level in the well. In many

(Testimony of John E. Armstrong.)

instances you get a well which has high static water level, but when you start to pump on it, the water level drops down lower and lower, which necessitates closing the control valve more and more. During actual adjustment of a control valve, it is customary to open the valve up to a point; as you first start the system, the valve is closed and then you start opening the control valve and watching the pressure gauge very carefully. As your valve opens, more and more water discharges from the pump, and your gauge starts, the pressure on your gauge starts to go down. Now, when it reaches the critical point of operation, even though you don't open the valve any more, the gauge keeps on going down and that indicates that your pump is losing prime, or it is getting ready to go out of operation. So [167] if you are quick enough, you close the valve, and it will pick back up again. If you aren't quick enough, why, you close the valve and stop the motor and pour some more water in. Then you start all over again, and you only open it to a point, maybe one or two pounds above where the needle started to drop. Then you allow it to pump to make certain that the water level in the well doesn't draw down, and if the water level in the well starts drawing down on you, you will notice that your gauge starts to go down again. So you close the valve a little more and keep setting it a little bit higher and letting the pump go for maybe a couple of hours, until you think you have reached

(Testimony of John E. Armstrong.)

the maximum low water level in a well. Then the control valve is set for that. However, in many instances after a pump is operated for three or four days or a week, the water table in the area will be drawn down even a little more and require a service man or someone to go out and readjust the control valve to meet the new water level.

Q. In other words, the installation, where a control valve is involved, is quite a procedure?

A. Yes, in many instances.

Q. And in the embodiment of your invention as shown in Exhibit 4, 958, you have one of the features of it, is that you have obviated the necessity of all those adjustments?

A. Yes, that is true. And another important thing is that [168] when you have a water level in a well that fluctuates a great deal, the absence of a control valve will allow the pump additional water that is available when the well is at a high level. But if you have a system with a control valve, the pump would pump it and will pump part of it, but the control valve restricts it, and it can't get through. So that you don't have the advantage of being able to use the well as a sort of a reservoir.

Q. And isn't one of the points of advantage so far as 958 is concerned, that you have all of the pressure of the stage which operates the jet or operates the injector system, going to the injector system?

A. Yes.

(Testimony of John E. Armstrong.)

Q. And that feature permitted the obviating of the control valve? A. Yes.

Q. Now, as to the time of conception of the embodiment shown in the two patents in suit, were they conceived at the same time, or which one was conceived first?

A. 285 was the first one conceived.

Mr. Bruce: That is all.

Cross-Examination

By Mr. Mellin:

Q. Mr. Armstrong, is the mode of operation of the pumping system shown in 285 the same as that shown in 958, Exhibits 3 and 4? [169]

A. Pardon?

Q. Is the mode of operation of the pumping system shown in 285 and 958, Exhibits 3 and 4, the same?

A. No, except that there is one thing in common with both of them, and that is a low pressure discharge at a pressure less than that used to feed the jet.

Q. Well, I understood you to say, for example, that the mode of operation of the pumping system shown in Exhibit 5, as illustrated, was the same as both 285 and 958? A. That's right.

Q. And I understood you to say that the same thing was true with respect to the other Berkeley Pump exhibits? A. I believe that is true.

Q. And that would be Exhibits 6, 7, 8 and 9?

(Testimony of John E. Armstrong.)

A. Substantially, correct.

Q. Now, during the last ten years the pumping conditions in some areas have changed, haven't they? A. Yes.

Q. For example, in the Santa Clara Valley, the water table dropping? A. Yes.

Q. And as those conditions change, the pumps used for wells in those areas must meet the new conditions; that is correct, isn't it?

A. Yes. [170]

Q. Now, I understood you to say—Beg pardon, strike that. I didn't.

Now, with respect to 285 and with particular reference to the low-pressure discharge nozzle 75, in the normal operation of that system, is it necessary or not to have a control valve there?

A. No, it is not needed, it is not essential to have a control valve at 75. You mean, will the pump operate without it?

Q. Well, I mean do you put one there in use or don't you?

A. Sometimes we do and sometimes we don't.

Q. How do you make the distinction?

A. Well, the purpose of the valve 83 is to balance the flow. The purpose of this valve is to——

Q. 83?

A. Yes, the valve 83. It is to balance the flow and to maintain a certain pressure in the tank. In other words, if we were discharging here at low pressure to service for irrigation, as we have said,

(Testimony of John E. Armstrong.)

and in some models of pumps the pressure in the tank might not be sufficient, say, so that the woman could draw water, maybe, in the second story of a house. In which case, by closing this valve slightly to put a little more pressure on this portion of the system, that the pressure in this portion can be raised up to maintain a balance or an adjustment to fit the conditions that are desired.

Q. Then as a matter of fact, whether you use a control valve [171] or its equivalent in the low-pressure discharge from the systems of 285 and 958, depends upon the conditions that you meet, varying conditions; some conditions you use them and some conditions you don't, depending upon the requirements of the cooking system?

A. In 285; in 958 you don't ordinarily use a control valve.

Q. Now, you don't ordinarily use it, but under some conditions of pumping systems, do you use it 958 in the pressure takoff to the tank?

A. Yes, you can recommend the use of a control valve or of a valve installed there for repair purposes, which would be left open.

Q. How about a control valve when you had a specially heavy jet requirement?

A. No, we have recommended control valves at that point for specific, special installations.

Q. In other words, when you meet a well con-

(Testimony of John E. Armstrong.)

dition that requires heavy pressure, then you put a control valve there?

A. No, I wouldn't say that was it.

Q. But there are some conditions, well conditions, to be met?

A. There are some well conditions that we do install a control valve there.

Q. Now, as a matter of fact, Mr. Armstrong, when you are pumping into a tank into a pressure tank as we have known it, that pressure in that tank offers a resistance to the flow and [172] creates a higher pressure in the pump than if you were pumping it to the atmosphere?

A. You mean if no water is being withdrawn from the tank?

Q. No, I haven't made myself clear, I am sorry.

Let's take Exhibit 4, and let's take discharge outlet 81, in which you have this, 79.

A. Yes.

Q. Now, it is normal procedure, isn't it, to have, say, a minimum of 20 pounds pressure in that tank of water?

A. Well, that is what you like to have. A great many times, however—the purpose of a control valve is——

Q. Let me take it step by step.

A. Let me explain this to you.

Q. All right.

A. The purpose of this control valve, here, it wouldn't be required if, say, you had needed 20 pounds to drive the jet, and you had a pressure

(Testimony of John E. Armstrong.)

switch setting at 20 to 40 pounds, and you knew that they weren't going to draw water off here faster than you pump it. But in many instances somebody will be washing the car, the girl will be taking a bath and the woman is washing the dishes, and the pump only pumps five gallons a minute and they are using ten, in which case this pressure keeps on dropping here so that if you didn't have that control valve, the pump will cease to function.

Q. I see. Now, let's reverse that situation. Let's take [173] Exhibit 3, 285, and let's say you have a heavy requirement from the low-pressure spout (indicating). A. Yes.

Q. Let's say that you are drawing for service for sister's bath, and to wash the car, and that is taking a quantity, a gallonage per minute which is greater than the pump capacity at that point. What happens then?

A. You are discharging through this?

Q. 81, yes.

A. It still pumps. They just don't get it. In other words, their pressure drops, but they still continue to get water.

Q. What happens to the jet?

A. It still operates.

Q. And why is that, in the patented system?

A. Because the high pressure, the other impellers provide the water to drive, under pressure, the jet.

Q. Why doesn't all the water go out of 81?

A. Because the spider is so constructed so that

(Testimony of John E. Armstrong.)

the water comes in back of it and across the entrance where the pressure is the lowest at the entrance to the higher impellers, and it takes its requirements.

Q. I see. In other words, there is a spider construction in that particular stage at the low-pressure discharge which mechanically sends part of the water always to the intake of the next succeeding stage, and part of the water to the discharge [174] 81, isn't that a fact?

A. It is designed that way, yes.

Q. Now, you heard Mr. Jacuzzi testify this morning, as I understood him, that that was not the fact. What have you to say to that?

A. I think that Mr. Jacuzzi didn't understand your question.

The Court: Well, that doesn't help me any.

Mr. Mellin: I beg your pardon again.

The Court: All you can do is to get him to say whether he agrees or disagrees with somebody else.

Q. (By Mr. Mellin): But I mean, what you just testified to is the construction of the patented device? A. Yes.

Q. So that that was one of the features as set out in the patent, that was one of the features of your invention? A. I beg pardon?

Q. That was one of the features described in your invention, to provide a positive means for always directing a proper proportion of the water at the stage where you take off the low pressure to

(Testimony of John E. Armstrong.)

direct that into the intake of the next succeeding stage; isn't that correct?

A. Yes, that is accomplished in our pump by taking the greater portion of the discharge of the lower impellers and bringing it across underneath the upper impellers, which take their requirements. It is accomplished in the same manner in the [175] Berkeley pump by having the intake to this impeller at a lower position than this discharge.

Q. In other words, in the Berkeley pump that is accomplished by a chamber? A. No.

Q. Just a moment, I haven't finished, Mr. Armstrong, I am sorry. It is accomplished by a chamber and having the discharge at a higher point than the intake of the impeller?

A. That is the mechanical device, in the same manner that this is a mechanical device.

Q. I mean, that is the way it is done here?

A. Yes.

Q. And in the patented device, it is done by a series of special mechanical construction of long and short dividing vanes or ribs, isn't that a fact?

A. No, not necessarily.

Q. Do you recall what you have shown in your patent? A. Yes.

Q. And that is what is shown to do that?

A. I don't think it says that it has to be long and short ribs.

Q. Just to refresh your recollection, Mr. Armstrong—

(Testimony of John E. Armstrong.)

Mr. Mellin: May I have Exhibits 1 and 2?

Mr. Bruce: Well, we submit, your Honor, that the patent shows one of the preferred forms that the invention will take.

Mr. Mellin: I am only asking what is shown, nothing else. [176]

Q. (By Mr. Mellin): I show you Figure 2 of patent 958, and particularly call your attention to the vanes, 53 and 78 (indicating); that was the purpose of that construction of that spider, isn't it?

A. No.

Q. All right. Now, without some mechanical means at that particular stage in the patent in suit, as arranged, with the high-pressure discharge where it is, and the low-pressure discharge where it is in that pump, if you did not have some means of insuring, some means in the stage which is connected to the low-pressure discharge, of insuring that part of the water, the unnecessary part of the water, was directed to the suction of the succeeding stage, would that device be operative?

A. You mean could I design it so it wouldn't work?

Q. No, I mean, just leave it out in the patent and take that means of dividing water out of there—would that be operative?

A. I believe it would under most conditions.

Q. Did you consult during the prosecution of your application for the two patents your counsel, do you recall, during the time that those applica-

(Testimony of John E. Armstrong.)

tions were being acted upon in the Patent Office?

A. Mr. Piccardo handled the early part of it, and then after he left, why, I consulted with them.

Q. Do you recall at any time representing to the Patent Office [177] through your counsel that if such a provision was not made, that the system would be inoperative? A. Well——

Mr. Bruce: Now, if your Honor please—just a moment. We will object to that. The prosecution will show it.

The Court: Yes, I suppose that is true. Unless under a general rule of cross-examination, counsel is going to attack the credibility, let's say, of the witness?

Mr. Mellin: Yes, your Honor. I am not going into——

The Court: All you are asking is whether he can recall that, or not?

Mr. Mellin: Yes.

Q. Do you? A. No, I dont.

Q. You are familiar with that prosecution, are you? A. In general, yes.

Mr. Mellin: I would like to offer in evidence at this time, your Honor, the certified copies of the file wrapper and contents of both of the letters patent in suit as Defendant's Exhibits B and C.

The Clerk: Exhibits B and C.

Mr. Gray: B is what number patent, Mr. Mellin?

Mr. Mellin: B is 958 and C is 285.

(Testimony of John E. Armstrong.)

(Patents Nos. 958 and 285 were marked Defendant's Exhibits B and C in evidence respectively.) [178]

Mr. Bruce: Mr. Mellin, have you the entire file history of 285?

Mr. Mellin: I hope so.

Mr. Bruce: I am speaking now of the interference.

Mr. Mellin: Oh, yes, let me have that. I will offer that, too.

May I offer as Defendant's Exhibit D a certified copy of the file wrapper and contents in the matter of the interference, No. 81632?

Mr. Bruce: And the Rhoda patent? That was involved in the interference.

Mr. Mellin: Do we have that here? I offer a certified copy of the file wrapper and contents in the matter of letters patent of Ralph Rhoda, No. 2,313,566, Defendant's next in order.

The Clerk: Exhibits D and E.

(Interference proceedings and patent of Ralph Rhoda, referred to above, were received in evidence and marked Defendant's Exhibits D and E, respectively.)

Q. (By Mr. Mellin): May I read you this, Mr. Armstrong, and I am reading from page 8 of one of the papers in the file wrapper of patent 285, and it is marked "C-865" (that is the page is): (reading).

(Testimony of John E. Armstrong.)

“The above relationship, however, does not necessarily offer a complete solution to the problem in every case. For if the low-pressure discharge were permitted to divert [179] practically all of the water reaching that point in the pump unit——”

Now, the low-pressure discharge in that patent is 81, isn't it?

A. Yes.

Q. (Continuing reading):

“——leaving insufficient water to be carried up through the subsequent stages for supplying the nozzle of the injector assembly, the pump system could not reasonably be expected to function. The design of applicant's impeller unit at the low-pressure discharge stage is such, therefore, as to positively divert sufficient water to the subsequent stages for supplying the nozzle of the injector pump even with a low discharge outlet open to full adjusted capacity.”

Do you recall that that representation was made to the Patent Office, or do you not?

A. I believe it is correct.

Q. Now, that, of course, is the fact of the actual operation of 285, isn't that correct? A. Yes.

Q. So that if sufficient means for positively diverting the water is not present, then 285 would not function? A. That's right.

Q. So that the reason why no control valve is

(Testimony of John E. Armstrong.)

necessary in 285 and in 958 is the fact that a special impeller construction—I [180] mean stage construction—at the point where the low-pressure discharge is taken off, is that correct?

A. Well, I don't think it is so special that it wouldn't be good standard practice if you were designing a pump.

Q. But I mean in here, that was a new design at that time? A. Pardon?

Q. It was a new design at that time?

A. That's right. If you want the water to go up to the upper stage, you have got to make your pump so that the water will go to the next stage.

Q. Well, you have known that multi-stage pumps have been made for somewhere around 85 or 90 years, haven't you? A. Yes.

Q. And they always have water running from one to the other, without any—it didn't require any new construction at this time to do that?

A. No, but when you are taking a discharge out of a stage, you can design that stage so that all the water would fall out of the discharge and none would get to the other impeller.

Q. Yes, I understand that. Now, how long have you had knowledge of, let's say, what we call pump pressure systems, as such?

A. Since—well, we had one out on the ranch when I was a boy, but the water jet pump, since 1937, when I went to work for Jacuzzi Bros. [181]

Q. And prior to that they had been without

(Testimony of John E. Armstrong.)

jets that operated, except for the mechanical design, just exactly like 9 with the plug 6 in place, is that correct? A. Will you read it again?

(Previous question read.)

A. They had pumps discharging at the point of highest pressure, yes.

Q. I mean, they had a motor? A. Yes.

Q. And they had a centrifugal pump?

A. Yes.

Q. And a suction? A. Yes.

Q. And they had a pressure tank?

A. Yes.

Q. And an automatic switch? A. Yes.

Q. And some sort of a valve, control valve or something?

A. Well, not—not in a shallow well system; they didn't put a control valve in there, they put in a valve like that to be used for repair purposes.

Q. I see. But a shallow well pump——

A. A shallow well pump doesn't require a control valve.

Q. I see. Now, whether there is a control valve in such a system or not, when you draw water out of the system, the water [182] pressure in the entire system equalizes, doesn't it?

A. In systems of that type, yes.

Q. Yes. And that is also true of a system such as is shown in 9, when you add the jet or the overlay 9-A; am I correct? A. Well,——

(Testimony of John E. Armstrong.)

Q. With the plug still in place?

A. I am sorry, I have forgotten what the question was.

Q. Well, let's take the pump system shown in 9. Now, at least as early as 1947 you have seen jet pump systems which had exactly the same mode of operation as 9 with the plug 6 in place, with the overlay of 9-A?

Mr. Bruce: Pardon me. Did you say 1947?

Mr. Mellin: I beg your pardon, '37. I think he gave that date as when he became familiar with jet pumps.

Q. Isn't that correct? A. Yes.

Q. And in such a system when they had a jet, they used a control valve or other equivalent?

A. Yes.

Q. But when you drew water out of the system, when you opened the tap or faucet in the house, or wherever you were drawing it, the water in the whole system equalized, didn't it? That is true of all pressure systems?

A. Yes, disregarding a difference in head, due to elevation.

Q. Yes. [183]

A. That would be true in all systems of that type. There are some which don't equalize.

Q. In other words, the water would equalize and as water was drawn out of the system, and when it got down to the pressure the switch was set on, and the motor would start to operate and the

(Testimony of John E. Armstrong.)

pump would commence again? A. Yes.

Q. And as soon as that commenced, it became unbalanced again, the pressure would become unbalanced? A. Yes.

Q. So that is inherently present in all pressure systems, that equalization, isn't it? It is present in all types that you have ever known of?

A. That type of equalization, yes.

Q. So that the only thing that occurs in the type of equalization that you are calling for is that when you open—I am referring to Exhibit 8—the valve of 12 and draw water off at 12, the pressure in the tank comes back into the pump and discharges through 12, and the whole system is balanced, all the pressure equalizes again, doesn't it?

A. Will you read that, please?

Mr. Mellin: Or seeks to equalize; put it that way.

(Record read.)

A. Seeks to equalize, yes, in that particular type of system.

Q. I am reading from—— [184]

Mr. Mellin: May I have this marked for identification?

The Clerk: Exhibit F.

Mr. Bruce: What is it?

Mr. Mellin: It is the operating instructions and I think it is part of the Carpenter deposition.

(Testimony of John E. Armstrong.)

(Operating instructions were thereupon marked Defendant's Exhibit F for identification.)

Q. (By Mr. Mellin): Referring to Defendant's F, which is a Berkeley Installation Instruction, have you seen that, Mr. Armstrong?

A. I have seen Berkeley Installation Instructions; I probably have seen this one.

Q. Now, as a matter of fact,—

Mr. Bruce: Is that the same one that was introduced in Carpenter's deposition?

Mr. Mellin: I don't think it is the same one; I think it is a copy of it.

Mr. Bruce: Well, I stand corrected, then.

Q. (By Mr. Mellin): It says this:

“It is desirable to test the well, put a valve on the pump discharge and close it while priming. Attach a pipe to carry the water away from the well and start the motor. Open the valve to approximately 20 pounds gauge pressure. This is the point of maximum capacity. When the valve is wide open, you will notice a decrease in capacity. The pump [185] does not lose prime. You will note a rattly noise in the suction caused by heavy vacuum which is producing a throttling effect in the pump. It does no harm.”

Now, isn't it possible, Mr. Armstrong, to throttle

(Testimony of John E. Armstrong.)

the discharge in any one of these pump systems by means of a gate valve?

A. It is possible to throttle it, it is not standard practice to use a gate valve for any throttling purpose because, first, in the place of a control valve in a pump system, they are easily tampered with by children; and secondly, because gate valves are designed to be either wide open or all the way closed and in a half open position they would tend to rattle. The gate would vibrate and bang up against the seats.

Q. But if you have a gate valve such as in these various Berkeley pumps, and you are installing the pump, you could throttle it by means of the gate valve so that you would have half pressure?

A. It could be done, yes.

Q. And that, in that effect, it would operate perhaps not as efficiently, but it would operate the same as a control valve? A. Yes.

Mr. Mellin: May I offer the instruction sheet into evidence as defendant's next in order?

(Whereupon Exhibit F for identification was received in evidence.) [186]

Mr. Bruce: Mr. Mellin, do you want to put in all the exhibits in the Carpenter deposition?

Mr. Mellin: No.

Q. Now, with respect to Exhibit 5, that isn't the one I want—change that to Exhibit 7.

You are familiar with the Berkeley Pump con-

(Testimony of John E. Armstrong.)

struction of the runners or impellers and the volute casing, are you?

A. Yes. Not as familiar as they are, but I know what they look like.

Mr. Mellin: May I have the Berkeley pump?

(Pump Assembly was then brought forward and placed upon small table in front of witness stand.)

Q. (By Mr. Mellin): Does that agree with your understanding of the exhibit, as to the mechanical construction of a Berkeley pump?

A. Yes.

Q. Now, you do not find, other than the chamber which you referred to earlier, any mechanical means for positively diverting water from the discharge of one impeller to the intake of the other, other than that chamber? And by that chamber I mean——

A. Well, just the location of the plug in the chamber.

Q. Pardon?

A. It is the location of the discharge of the chamber.

Q. That is right. That was chamber 7 in Exhibit 7?

A. Yes. [187]

Q. So that the water from the discharge, all of the discharge of the water in the—I am referring to Figure 5—all of the discharge from the water from the impeller too is discharged from its own pump casing, isn't it?

A. Yes.

(Testimony of John E. Armstrong.)

Q. And it goes into the chamber, which I now mark on Exhibit 5, 8-A, is that correct?

A. Yes.

Q. And there it goes by gravity or under the influence of the pump pressure partly into the intake of the runner or impeller, 3, is that correct?

A. Yes.

Q. And the other part discharges through the outlet into the pressure tank or wherever you are taking it to, is that correct? A. Yes.

Q. Now, would you say that there is no requirement for any restriction of some character or resistance to the flow of water into the outlet, which I mark 8-B on Exhibit 5?

A. Will you read that question?

(Record read.)

A. That pump doesn't require a control valve. Is that what you mean—or a restriction?

Q. It does not require any restriction?

A. That's right.

Q. If there was not—Strike that. [188]

If there was no restriction in there, the pressure in the chamber, 8-A, would be atmospheric, wouldn't it? A. Yes.

Q. And atmospheric, it wouldn't raise above the level of the outlet 8-B, it would just fall on the ground, wouldn't it? A. Yes.

Q. So that wouldn't be practical to pump into a

(Testimony of John E. Armstrong.)

tank and create pressure, would it, if that were still atmospheric?

A. Well, as it flows into the tank it builds up pressure.

Q. So that as it flows into the tank, it builds up resistance, a resistance builds up to the flow of water through the port 8-B, is that correct?

A. Yes. Well, not resistance, but the tank pressure becomes, it bucks it.

Q. Bucks it, so that there is a resistance to pumping out of the port, 8-B, from the pump chamber? A. Yes.

Q. And that resistance raises the pressure in chamber A, doesn't it?

A. Well, it has got to get higher in A in order for water to get into the tank.

Q. In other words, that is, it has to get higher and higher until the minimum pressure in the tank is reached? A. Yes.

Q. So that actually from that viewpoint we have substituted the [189] pressure in the tank as a resistance for the resistance of a restriction in the port, discharge port 8-B; isn't that a fact?

A. No, I think they are altogether different. The pressure in the tank is one thing and the control valve that keeps the pump in operation is another thing.

Q. Well, the pump automatically goes in operation when the pressure in the tank lowers, doesn't it?

(Testimony of John E. Armstrong.)

A. Yes, but in the case of one which requires a control valve, you take the control valve out, it is possible to draw sufficient water from the tank to make the pump inoperative.

Q. Now, would you say, Mr. Armstrong, that in the Berkeley pump system——

Mr. Mellin: And may I offer this Berkeley pump part which is here next in evidence, Defendant's next in order?

The Court: It may be admitted and marked.

(Whereupon pump mechanism, Berkeley Pump Company, referred to above, was marked Defendant's Exhibit G in evidence.)

Q. (By Mr. Mellin): Would you say that there are in the part that I am showing you, which is cut away, and is only the centrifugal part, of course, Mr. Armstrong? I am saying that for the record. Are there two centrifugal pumps there, or is it just one? A. One.

Q. Are there more than one centrifugal pump in 285 or just one? A. One. [190]

Q. You would definitely state, then, that 285 does not disclose a low-pressure pump and a high-pressure pump?

A. The effect could be the same as that, but it is one pump. When we sell it to a man, we bill him for one pump, we don't bill him for two.

Q. Well, could you say that it is a low-pressure

(Testimony of John E. Armstrong.)

centrifugal pump and a high-pressure centrifugal pump?

A. I think you could say that for purposes of explanation to someone.

Q. Then you could also say likewise that the Berkeley device is two centrifugal pumps, is that so or not?

A. You mean with the low-pressure discharge on it there is a means for getting low pressure, there is a means for getting high pressure?

Q. You wouldn't say that there was two centrifugal pumps? It is not a trick question, Mr. Armstrong. I have a definite reason for the answer.

A. Well, I would say it is one centrifugal pump.

Q. I see.

A. Multi-stage centrifugal pump.

Q. A centrifugal pump, a multi-stage centrifugal pump. Yes, and that is what you would say of 285?

A. Yes, and conventional.

Q. And 958. Now, I want to point this out to you on Exhibit 9 and the other exhibits from 5 to 9: There is a complete volute [191] casing for each impeller in the Berkeley pump?

A. I would assume so.

Q. And so there are two impellers and two volute casings, but they are driven on a common shaft?

A. Yes, there is one shaft.

Q. Now, are you aware of the fact that centrifugal pumps have been built long prior to 1940,

(Testimony of John E. Armstrong.)

ordinary centrifugal pumps, in which there are selective discharges from the pump? In other words, where you can select, where you want to select the discharge off the pressure from the first impeller or the second impeller or the last impeller? A. Yes.

Q. And it was an old device at this time? I mean,— A. Pardon?

Q. That was old in 1940?

A. Yes, I believe it was.

Q. So in effect, disregarding the manner in which this matter is taken in disregarding the jet, and assuming that the pump has a casing, two runners and two discharges, one from the second impeller and one from the first, disregarding all other things—that is merely that that operates merely on the principle of an old centrifugal pump with selective discharges? A. Yes.

Q. Is that correct?

A. But you can't disregard all of those things.

Q. Well, I mean if you disregard them, just strip the system down to the bare centrifugal pump.

The Court: We will take a brief recess.

(Recess.) [192-A]

Mr. Mellin: No further cross-examination.

The Court: Anything else of this witness?

(Testimony of John E. Armstrong.)

Redirect Examination

Q. (By Mr. Bruce): Mr. Armstrong, referring to Exhibit 5, the Berkeley Pump structure, is there any means provided for the water delivered from the first stage of the pump to the inlet of the second stage?

A. It is provided by way of design in having the inlet to the second stage lower than the low pressure discharge.

Q. The effect of the casing and in the design is to favor the delivery of water to the second stage of the pump unit? A. Yes.

Recross Examination

Q. (By Mr. Mellin): Mr. Armstrong, the water that goes into the chamber 7 from the first impeller follows natural laws, either the path of least resistance or gravity?

A. Chamber 7 of Exhibit 7?

Q. Yes.

A. Yes, it is designed to do that.

Q. In an ordinary multi-stage centrifugal pump with more than one discharge passage, where a different stage is provided and arranged horizontally with a stage going from the top of the pump vertically, that same thing follows, doesn't it?

A. I am afraid I do not follow you.

Mr. Mellin: May I diagram it, Your Honor?

(Testimony of John E. Armstrong.)

The Court: Surely.

Q. (By Mr. Mellin): Now, you would have a discharge A and a discharge B and inlet C and impellers D, a multi-stage arrangement on a single shaft, diametrically, of course, so that from the intake it goes into the suction of one and is discharged through A, and then part of it goes, or if A is completely closed, all of the fluid goes through the successive stages B. By the way, those are the pumps you and I were discussing where there was selective discharge for a centrifugal pump. In general, that is the scheme of them, isn't it?

A. Pardon?

Q. In general, that is the cycle or the pattern or the flow cycle?

A. Of that pump, yes.

Q. Of that kind of pump? A. Yes.

Q. When we were discussing selective multiple discharge out of the centrifugal pump?

A. We were discussing quite a few pumps and I don't remember.

Q. Taking my diagram as a hypothetical pump, wouldn't we have the same force of gravity that you say we use in Exhibit 7 to feed the intake of the second stage? Wouldn't we have that same gravity condition in the sketch which I mark H for identification? A. Yes. [194]

Mr. Mellin: May I offer that sketch in evidence, Your Honor, as our exhibit next in order?

(Testimony of John E. Armstrong.)

(The sketch referred to was thereupon received in evidence and marked Defendant's H.)

Mr. Mellin: That is all.

Further Redirect Examination

Q. (By Mr. Bruce): Mr. Armstrong, that has nothing to do with an injector assembly, has it?

A. No.

Mr. Bruce: No further questions of this witness.

At this time, if Your Honor please, I think Mr. Mellin will probably stipulate to this: I would like to introduce some literature published by the Berkeley Pump Company relating to Exhibits 5 through 9, and which were identified in the deposition of Mr. Carpenter, the president of the Berkeley Pump Company. Have you any objection to that?

Mr. Mellin: No.

Mr. Bruce: Then we would like to introduce as Exhibit next in number Bulletin 501 of the Berkeley Pump Company.

(The bulletin referred to was thereupon received in evidence and marked Plaintiff's Exhibit No. 12.)

Mr. Bruce: Bulletin 503, second edition of the Berkeley Pump Company.

(Bulletin 503, Second Edition, was thereupon received in evidence and marked Plaintiff's Exhibit No. 13. [195])

Mr. Bruce: Bulletin 506, July 25, 1947, Berkeley Pump Company.

(Bulletin 506, July 25, 1947 was thereupon received in evidence and marked Plaintiff's Exhibit No. 14.)

Mr. Bruce: Bulletin No. 500 of the Berkeley Pump Company.

(Bulletin 500 was thereupon received in evidence and marked Plaintiff's Exhibit No. 15.)

Mr. Bruce: An advertising circular entitled "Gracious Country Living."

("Gracious Country Living" was thereupon received in evidence and marked Plaintiff's Exhibit No. 16.)

Mr. Bruce: Catalogue No. 2 of the Berkeley Pump Company.

(Catalogue No. 2 was thereupon received in evidence and marked Plaintiff's Exhibit No. 17.)

Mr. Bruce: Installation and operating instructions, small sheet.

(Installation and operating instruction was thereupon received in evidence and marked Plaintiff's Exhibit No. 18.)

Mr. Bruce: At this time further we would like to introduce a certified copy of the Rhoda patent involved in the interference.

Mr. Mellin: It is already in.

Mr. Bruce: Did you introduce that?

Mr. Mellin: Yes.

The Court: Defendant's Exhibit E.

Mr. Bruce: I think that is our case in chief,

Your Honor. [196]

The Court: Very well.

Mr. Mellin: If I may address the Court, the witness that was supposed to be here was absolutely unavailable until the first thing tomorrow morning, Your Honor, so I will try to do the best I can to fill in with the other things we were going to offer.

FRED A. CARPENTER

was called as a witness on behalf of the defendant, and being first duly sworn, testified as follows:

Direct Examination

Q. (By Mr. Mellin): Will you give your age and residence, Mr. Carpenter?

A. 50 years old, 915 Mendocino Avenue, Berkeley, California.

Q. What is your occupation?

A. Pump manufacturer.

Q. What are you by training, Mr. Carpenter? Are you an engineer by training?

A. By training I might be called a practical engineer, a pump engineer.

Q. What is your experience in pumps?

A. Starting in 1919 I had 11 years experience

(Testimony of Fred A. Carpenter.)

with Byron Jackson Company, and in 1932 I started making pumps on my own hook.

Q. And you have been in the pump business ever since?

A. I have been in the pump business ever since.

Q. Byron Jackson are one of the largest manufacturers of pumps in the country, aren't they?

A. They are one of the largest on the Pacific Coast.

Q. You are now active in the Berkeley Pump Company?

A. Yes, sir.

Q. You are an officer?

A. Yes, sir.

Q. What office?

A. I am president.

Q. You are familiar with the business of the Berkeley Pump Company, the defendant, during the last—By the way, when was it started?

A. It was incorporated in 1937.

Q. Was it a partnership before that or after that?

A. There was a brief period of partnership, oh, maybe a month or so, while we were organizing.

Mr. Bruce: Pardon the interruption. Is that the Berkeley Pump Company or the Berkeley Pump Corporation?

The Witness: Well, to clarify it, it was called the Advance Machine Works for just a short time, in taking over a partnership firm, when I joined it, until the incorporated papers were drawn up and filed; it operated that way just a short time.

(Testimony of Fred A. Carpenter.)

In March 1947 it became the Berkeley Pump Corporation.

Q. (By Mr. Mellin): And was it a partnership after 1937?

A. Yes, it was changed, I believe, in 1942 to a copartnership. [198]

Q. What is it now?

A. It is now back in a corporation.

Q. When did that commence?

A. I think in 1946.

Q. Are you familiar with the various types of well pressure systems? By the way, how long have you been familiar with well pressure water systems of the general character we have been discussing?

A. Oh, I would say since 1925.

Q. Did or did not the Berkeley Pump Company manufacture water pressure systems as we have been discussing heretofore?

A. Did it or did it not?

Q. Yes.

A. We started right off with water systems.

Q. That is water pressure systems?

A. Yes.

Q. When, if you ever did, did you commence to manufacture a two-stage pump for use in conjunction with water systems or for other pumping?

A. We started early in 1937.

Q. I show you a diagrammatic chart and ask you to disregard the red marks thereon and ask you

(Testimony of Fred A. Carpenter.)

if your recognize that diagram as a pumping system.

A. Yes, I do.

Q. Will you tell us about it, please? Let us start this way: Is that a system such as was manufactured by Berkeley Pump? A. Yes. [199]

Q. Commencing when? A. 1937.

Mr. Mellin: May I have that chart marked for identification?

Mr. Bruce: You can put it in evidence directly if you would like.

Mr. Mellin: I will offer that in evidence as defendant's next in order.

(The chart referred to was thereupon received in evidence and marked Defendant's Exhibit I.)

Q. (By Mr. Mellin): How many stages does that pump have?

A. It has two stages, and if you want to call the jet a stage, It would be three for the entire system.

Q. Does it have a motor for driving the impellers of the two stage system?

A. Yes, that shows the motor.

Q. What is the difference between the impeller structure and the casing for the impeller structure in Exhibit I, and the impeller structure and the casing structure shown in Exhibit 5?

A. They are substantially the same.

Q. Assuming the flow of fluid only, not the dis-

(Testimony of Fred A. Carpenter.)

charge of it, assuming only the flow of the fluid in the pump itself and through the jet, is there any difference in the cycle of flow in that Exhibit I and Exhibit 5 or not? [200]

A. There is no difference when you first consider the discharge.

Q. As I understand it, the suction from the jet goes in precisely in the same manner in I as in 5?

A. That is right.

Q. And discharges in the pump casing in the same fashion? A. Yes, that is right.

Q. And goes back and around and enters from the top into the suction of the upper impeller?

A. That is right.

Q. And from the upper impeller it goes downwardly and is discharged to the jet, is that correct?

A. That is correct.

Q. So far as that cycle is concerned, Exhibit 5 and Exhibit I are precisely alike, is that correct, or incorrect?

A. That is correct.

Q. Would you tell us, please, did you hook these up in systems of various kinds?

A. Yes, we used them in quite a variety of uses.

Q. Referring to Exhibit I, and, as I understand it, the dotted lines indicate pipe——

A. That is right.

Q. Will you tell us, please, where the discharges are there, how the water discharges?

(Testimony of Fred A. Carpenter.)

A. Exhibit I shows water by arrow going out the high pressure [201] discharge, that is, the discharge from the last stage.

Q. The one I label A? A. That is correct.

Q. Did you use a control valve or some other resisting medium at that point?

A. Yes, we did.

Q. What is the pipe that I mark B?

A. That we call the pressure pipe, the pipe that conveys water to the jet assembly.

Q. Then, as I understand it, the water from the second stage divides, part of it going out A, part down the pipe B to the jet C?

A. That is correct.

Q. And then upwardly into pipe D to the suction of the lower impeller, the first impeller, which I mark 1? A. That is correct.

Q. And from thence it goes into the chamber which I mark 2? A. That is correct.

Q. And from thence into the intake of the second impeller, which intake I mark 3?

A. That is correct also.

Q. And I mark the second impeller by the number 4. At any time will you state whether or not you had any low pressure discharge from this pumping system prior to 1940?

A. Yes, on many occasions we put a T on the suction pipe D. [202]

Q. I show you a second chart. Does that correctly illustrate the same pump structure as in I?

(Testimony of Fred A. Carpenter.)

A. Yes.

Mr. Mellin: I offer that chart in evidence as J.

(The chart referred to was thereupon received in evidence and marked Defendant's Exhibit J.)

Q. (By Mr. Mellin): Where did you put the T, please, and is it illustrated?

A. The T is illustrated as being installed in the suction pipe.

Q. The suction pipe I labeled D, and I will label the T as E, is that correct? A. That is correct.

Q. What happens when you put the T in there, if anything?

A. You have another outlet for the water.

Q. And is that the discharge which I mark F?

A. Yes.

Q. And that is a low or a high pressure discharge?

A. That would be called a low pressure discharge.

Q. I notice on J there is a pipe plug drawn in red and labeled A. What have you to say about that opening and with respect to the pipe plug, which I notice here as a pipe A in Exhibit I?

A. When the pumping system is to be used solely to deliver your pressure water from a deep well, there is no need to use the outlet marked A; so it is plugged.

Q. As shown in Exhibit J in red? [203]

A. As shown in Exhibit J in red.

Q. In that event, where is all the water which is

(Testimony of Fred A. Carpenter.)

discharged from the last or stage of highest pressure directed?

A. It is all directed to the jet assembly.

Q. Will you state whether or not at any time there was a high pressure discharge from the point A in Exhibit I as well as a low pressure discharge as shown in Exhibit J or not?

A. Yes, on several occasions we used both discharges as shown in A and the low pressure discharge shown at F.

Q. Will you state whether or not it is possible to take water from both points at the same time?

A. It is possible, but it is not very practicable.

Q. I asked you to bring with you a record of at least one sale of the system such as shown in J and modified as you speak of it in I with a pipe from the high pressure point A. Did you hand me such a record?

A. Yes, I handed you such a record.

Mr. Mellin: May I have these documents fastened together and marked for identification as one exhibit, Your Honor?

(The documents referred to were thereupon marked Defendant's Exhibit K for identification.)

Q. (By Mr. Mellin): I will hand you what is labeled K for identification, which consists of four documents. Where did you obtain these?

A. We obtained these from the files of the Berkeley Pump [204] Company.

(Testimony of Fred A. Carpenter.)

Q. The first document I see at the rear is a sketch. It is a sketch of what?

A. It is a sketch of a proposed pumping system as drawn by our salesman.

Q. Do you know when?

A. I know it was drawn prior to the date of this invoice, which was July 24, 1939.

Q. What does the invoice show?

A. The invoice shows the pump was sold to Frank J. Dennis of Oakland, California.

Q. When did you first see this sketch that is attached to it?

A. Some time prior to the date of that invoice.

Q. Why would it be that you saw it at that time? Will you explain what your duties at Berkeley Pump were at that time?

A. As president I was also chief engineer.

Q. And these other documents all pertain to that sale? A. Yes.

Q. And were all made at the time and on the dates that they bear? A. That is right.

Mr. Mellin: May I offer that, Your Honor, as next in order?

Mr. Bruce: I may want to reserve an objection to it.

Mr. Mellin: May I withdraw the offer, Your Honor, for a moment? There was a sketch in there I did not see. [205]

Q. I also notice, which I overlooked before, a

(Testimony of Fred A. Carpenter.)

sketch on a telegraph blank that is in there. Do you recognize that sketch?

A. Yes, I made that sketch.

Q. When was that made?

A. That was made on July 17, 1939.

Q. How do you know that? Is it dated?

A. The sketch was a part of the order to be entered which was written on that date by myself.

Q. And the note that you just referred to, which is the third sheet, is the handwritten order by you?

A. That is the handwritten order, yes.

Mr. Mellin: I offer that in evidence as next in order, Your Honor.

Mr. Bruce: We would like to object to that at this time and ask leave to ask a few questions on voir dire of this witness for the purpose of laying a foundation for the objection.

The Court: What is this drawing?

Mr. Mellin: It is part of the prior art and to prove this system was made and sold by them prior to 1940.

The Court: Prior to the application for these patents?

Mr. Mellin: More than a year prior to them, yes.

The Court: You wish to ask questions going to the admissibility of the documents, as to the foundation?

Mr. Bruce: Yes, Your Honor.

(Testimony of Fred A. Carpenter.)

The Court: Very well. [206]

Q. (By Mr. Bruce): Mr. Carpenter, this invoice pertains to one type of pump, does it not?

A. Yes.

Q. And the type of pump that it refers to, there are two sketches attached to it of two pumps. Which one does the invoice refer to?

A. The invoice refers to the sketch that I made.

Q. It refers to the sketch you made?

A. This one right here.

Q. It does not refer to the other? A. No.

Q. It does not refer to the second sketch, the last sketch on there?

A. It does to a certain extent because the other sketch is a salesman's idea of how a pumping plant could be put in.

Q. But that second pump is not the one that is covered by the invoice?

A. Which one? This one here?

Q. Yes.

A. This is not a pump; this is merely a sketch.

Q. It is a sketch but it shows a pump system, doesn't it? A. Yes, that is right.

Q. That is not the one that the invoice covered. The one that the invoice covered is the one which you made on the telegraph blank? [207]

A. That is right.

Q. That is the one that the invoice covers and the other not? A. That is right.

Mr. Bruce: We object to the offer as it particularly pertains to the last mentioned sketch.

(Testimony of Fred A. Carpenter.)

Mr. Mellin: If Your Honor please, it is all part of one transaction.

The Court: As I understand it, the salesman drew up his idea of a pump and then an order was taken and a pump was constructed and sold that conformed to the sketch which the witness made.

The Witness: That is right.

The Court: With that explanation wouldn't it be proper to admit all of the documents? Although I agree with you, I do not see much point in having the exhibit cover anything more than the sketch which the witness made, and which he said was the basis of the construction.

Mr. Mellin: Actually, Your Honor, they are only very diagrammatic sketches of the pumping system.

Mr. Bruce: Your Honor, I do not see any harm in it anyway. We will withdraw the objection.

The Court: Let it be marked.

(The document referred to was thereupon received in evidence and marked Defendant's Exhibit K.)

Q. (By Mr. Mellin): Mr. Carpenter, will you diagram for us, [208] please, the pumping system which you have illustrated on your sketch on the large chart and explain the fluid flow cycle in it as with regard to the direction and with regard to pressure? By the way, how is the pump illustrated in your sketch? Was that the same pump as in Exhibit I, as far as the centrifugal pump structure was concerned, or different? A. It is identical.

(Testimony of Fred A. Carpenter.)

The Court: It is what?

Mr. Mellin: It is identical.

The Court: What is the good of drawing it?

Mr. Mellin: This is the system, Your Honor. It is a little different system.

The Court: He said it is the same.

Mr. Mellin: The pump structure itself is the same. That is not what I am considering. It is just the fluid cycle flow. It won't be long.

(The witness made a diagram.)

Q. (By Mr. Mellin): What does that indicate that you have just drawn?

A. This is a valve, this is a discharge to a high elevated tank. This is a T, a plug, and the pipe leading to a low elevation tank that had a screen on the end of it.

Q. Could you with arrows give us the direction of flow in the sketch? That is the jet. Will you label that the jet, please? What line is that? [209]

A. That is the suction pipe.

Q. Will you label that, please? Will you label this element, please?

A. That is the pressure pipe.

Q. Will you diagram the flow of the fluid in the pump with arrows?

A. Part of the time the water was falling like this.

Q. Put an arrow there, please. Divided at that point.

A. Divided at that point.

(Testimony of Fred A. Carpenter.)

Q. At that point put an A, please, and the fluid entering the pump would flow past the first impeller? A. That is right.

Q. Label the first impeller B. And then through the casing? A. That is right.

Q. And then through the suction of the second impeller? A. That is right.

Q. Will you label the second impeller C, please? And then from the discharge of the second impeller.

A. Out of the pump into a T. When this is open, when they want it to pump water in here, this was closed so all the water from the high pressure pump went to the jet assembly.

Q. Was that system actually installed, Mr. Carpenter, to your knowledge, or not?

A. That was installed and working.

Q. And is it still in operation or not? [210]

A. It is still in operation, to the best of my knowledge.

Q. Did it operate successfully for the purpose it was intended?

A. Yes, the customers were quite pleased with it because it was quite a unique installation.

Mr. Mellin: May I offer this sketch just drawn by the witness as our exhibit next in order to illustrate his testimony?

Mr. Bruce: Just one question. We might not have any objection.

Q. Is that the same pump that is shown on your

(Testimony of Fred A. Carpenter.)

sketch on the telegraph blank or have you amplified it?

A. I have intended to make it diagrammatically the same.

Q. Have you added anything to the sketch that you have drawn over what is shown on your sketch on the telegraph blank?

A. Well, let's see. I will check it. There is the valve. That is correct. I have not attempted to show the elbow. We could call this an elbow. There are two discharges on this pump. One was up here and the other discharge connected to the jet only.

Q. In other words, the illustration which you have sketched is not wholly like that shown on the telegraph blank?

Mr. Mellin: I did not ask him to duplicate the sketch, Mr. Bruce.

Mr. Bruce: You asked him to explain it.

Mr. Mellin: That is what he did.

Mr. Bruce: But you have changed certain figures. [211]

The Witness: I made no changes in the flow cycle.

Q. (By Mr. Bruce): But you have in the structure?

A. Or the method of operation or the structure.

Q. (By Mr. Mellin): Does that invoice tell you what design of pump, the invoice you have, Exhibit K, what design of pump is involved?

(Testimony of Fred A. Carpenter.)

A. Yes, it is the drawing used in making the pump.

Q. Do you know of your own knowledge that that is the two-stage pump that you have sketched in the sketch that you made? A. Yes.

Q. And that is the same shown in Exhibit I?

A. That is the same.

Mr. Bruce: Have you the original sketch from which you made the pump?

Mr. Mellin: I have a photograph of it, if you will give me time.

Mr. Bruce: We will object to this as attempting to establish by something the witness has testified to now a date back in 1939, which does not correspond with the drawings he claims to have made in 1939, and therefore we object to the admission of this drawing that the witness has just made.

Q. (By Mr. Mellin): Are there any differences, Mr. Carpenter, between the flow cycle of the pumping system that you have just diagrammed and that shown on the telegram Exhibit K?

A. No difference. [212]

Mr. Bruce: He has admitted that there is a difference in structure and that is the basis of our objection.

Mr. Mellin: Your Honor, there is no structure shown. It is merely diagrammatic.

The Court: May I see the exhibit? Pumps were much cheaper in 1939.

The Witness: That is right, Your Honor.

(Testimony of Fred A. Carpenter.)

The Court: The order refers to a sketch furnished by F. A. Carpenter.

Mr. Mellin: Yes, that is the salesman.

The Court: F. A. Carpenter is not the witness?

Mr. Mellin: Oh, F. A. Carpenter, yes. I beg your pardon.

The Court: You said you had some photostat of that sketch that was furnished by F. A. Carpenter?

Mr. Mellin: That is the sketch, Your Honor, that is attached.

Q. Isn't that so, Mr. Carpenter, or not?

A. I believe so.

The Court: According to the order, there must have been some sketch that was furnished to Mr. Dennis, the purchaser, and they would not refer to the sketch that the witness made that was kept in the company's file. He must have referred to some sketch that was furnished.

Q. (By Mr. Mellin): Mr. Carpenter, can you explain that?

A. Yes, the order to produce the pump, you might say, referred to a sketch made by F. A. Carpenter, to show them how to hook up [213] a pump. The order I wrote out is an order to construct the pump and also to be used in typing up the invoice.

The Court: You must have given the man a sketch along with this order.

Mr. Mellin: We can produce many other sales, Your Honor, if there is any question about it. We will produce them.

(Testimony of Fred A. Carpenter.)

The Court: It may not be. I may be incorrect about that. This is the company's order. It is signed by the purchaser. It might not be that the sketch was furnished to the purchaser but was attached to this order. It may have been given to the purchaser on the copy of the order which he probably received. I suppose these orders were issued in duplicate.

Q. (By Mr. Mellin): Could you explain that, Mr. Carpenter, with those papers?

A. Yes. The first blue piece of paper is our copy of the invoice. The second piece of paper is the sales order covering the unit.

Q. Who does that go to?

A. That is turned in to us by the salesman who sold the pump and signed by the customer who purchased the pump.

The Court: The purchaser got a copy of that?

A. Probably did.

The Court: Maybe he was furnished with a sketch at the time.

The Witness: It says here, "Take all pipe as approved. Sketch furnished by F. A. Carpenter. Pump is guaranteed to pump [214] well continuously, discharging into storage tank. Any water above foot valve will not lose prime."

Q. (By Mr. Mellin): And that installation, to your knowledge, was made in accordance with the sketch that is there? A. Yes.

Mr. Mellin: I submit, Your Honor,—

(Testimony of Fred A. Carpenter.)

The Court: That has been admitted. The question that has been raised by your opponent is whether or not the sketch that you now had the man draw—I do not know why you were not content to rest on what you put in here on the order, if the witness testifies to what that meant. Now, you have him draw something else. It may be someone different.

Mr. Mellin: The diagram is the same. What he is objecting to, as I see it, is the fact that he has drawn two impellers in here instead of an outside view of the pump. Is that correct?

Mr. Bruce: No, he has changed other parts of it.

Mr. Mellin: I will withdraw the offer and I will leave the witness explain it from his own sketch.

Q. Go on, will you, Mr. Carpenter? Will you explain the system from the sketch, that is, on Exhibit K? A. This——

Q. Don't diagram it. Just explain it from the sketch on Exhibit K.

The Court: What kind of pressure system does the sketch that you have here attached to that order describe? That is what [215] you want.

Mr. Mellin: Yes, the sketch attached to the order of Exhibit K.

Q. What kind of pump does it describe, that entire document? Does it or does it not describe the actual pump structure, leaving out the pipe as shown in Exhibit I?

Mr. Bruce: Your Honor, that is leading and suggestive.

(Testimony of Fred A. Carpenter.)

Mr. Mellin: I said does it or does it not?

The Court: It is not leading if it calls for either a yes or a no answer.

Mr. Bruce: I guess that is right, so says the Code.

The Witness: The sketch does refer to the pump and the jet assembly shown on Exhibit I.

Q. (By Mr. Mellin): Does any other particular paper refer to that type of pump, the invoice, for example, or the sales order? A. To any pump?

Q. This particular pump in Exhibit I by number.

A. The papers all refer to the same pump.

Mr. Bruce: Your Honor, we object to this line of questioning. The sketch which the witness holds in his hand is not the best evidence.

The Court: It has been admitted in evidence. The witness has testified it is the same as Exhibit I. The other side can cross examine him on it. I think that is enough.

Q. (By Mr. Mellin): Will you tell us, is there a low pressure [216] connection on the sketch shown in Exhibit K?

Mr. Bruce: Now, Mr. Carpenter, you are looking at one of the exhibits rather than the exhibit K—Exhibit I or J.

Mr. Mellin: He has Exhibit K in his hand, Mr. Bruce.

Mr. Bruce: Mr. Mellin, he is looking at Exhibit I and J rather than the one that he has in his hand,

(Testimony of Fred A. Carpenter.)

and your question is directed to what he had in his hand.

Mr. Mellin: All right.

Q. From the sketch that you have in Exhibit K——

Mr. Bruce: I don't know what you are trying to build up.

Q. (By Mr. Mellin): ——is there a low pressure takeoff in Exhibit K in the system?

A. Yes, there is.

Q. How does that compare with the low pressure takeoff shown in Exhibit J?

A. It is taken from the same place as in Exhibit J.

Q. Does it have a high pressure takeoff or not?

A. Yes, it has a high pressure takeoff.

Q. Is the high pressure takeoff similar to that shown in Exhibit I or not at A?

A. Yes, it is the same high pressure takeoff as in Exhibit I.

Q. Is there a valve or is there not a valve in the high pressure takeoff?

A. There is a valve in the high pressure takeoff.

Q. So that can be closed?

A. It can be closed.

Q. Is there a valve or is there not a valve in the low pressure takeoff?

A. There is no valve in the low pressure takeoff.

(Testimony of Fred A. Carpenter.)

Q. Shown on the sketch. Is there a jet shown on the sketch?

A. There is no jet shown on this sketch; just one indicated by pipes.

Q. I hand you a photograph which is labeled No. 2, June 21, 1939, and ask you if that is a photograph of the same type of pump that was furnished in conjunction with Exhibit K or not.

A. It is the same type of pump as shown in Exhibit K.

Q. How does the pump which is shown in that photograph compare in internal construction with the pump shown in Exhibit I and J?

A. Its integral parts are identical.

Q. Does that photograph show a pump casing with a high pressure discharge opening?

A. Yes, it does.

Q. Where did you get that photograph?

A. Took it from our records and files.

Q. Are those records in your possession?

A. They are.

Q. Was or was not that photograph in the file from the date that it bears?

A. It was in our file on the date shown. [218]

Mr. Mellin: I offer the photograph in evidence as next in order, Your Honor.

(The photograph referred to was thereupon received in evidence and marked Defendant's Exhibit L.)

(Testimony of Fred A. Carpenter.)

Mr. Bruce: May I see the photograph a minute?

Q. (By Mr. Mellin): Is this the only sale of pumps such as shown in J and I which the Berkeley Pump made prior to 1940, Mr. Carpenter?

A. No, sir.

Q. Will you tell us, please, are you in a position to know approximately how many of those pumps were sold?

A. Oh, there must have been at least 50.

Q. During what period?

A. 1937, 1938 and 1939.

Q. Do you still manufacture the pump?

A. Yes, we do.

Q. Do you or do you not still supply it for systems in which there is a takeoff of the suction?

A. We do furnish it with a low pressure discharge taken from the suction pipe.

Q. Is or is not the pump shown in I and J the preliminary design or the forerunner, or whatever you want to call it, the antecedent of the particular pump and pump casing and structure shown in Exhibit 5?

A. Yes, it is the forerunner of that pump design.

Q. Mr. Carpenter, is it not a fact that during the last 10 or 15 years there has been a steadily increasing requirement for pumps for wells of steadily increasing depth?

A. That is true.

Q. Will you tell us briefly something about that? Is that because the water table in the various counties has been lowering?

(Testimony of Fred A. Carpenter.)

A. It is partly because of the lowering of water levels in California and other points and partly because we reach farther afield in our sales and we run into conditions that call for deeper pumping.

Q. Do you now have to go to increasing depths, make equipment for increasing depths, say 300 feet, where formerly 200 feet was the maximum?

A. Yes, we are making pumps now for 300 foot depths.

* * *

(Thereupon an adjournment was taken to tomorrow, Friday, May 13, 1949, at 10:00 o'clock a.m.)

Friday, May 13, 1949, 10:00 o'clock A.M.

The Clerk: Jacuzzi Bros. vs. Berkeley Pump Company.

Mr. Bruce: Ready.

Mr. Mellin: Ready. At this time, Your Honor, with the indulgence of the court and counsel, I have a witness who has been taken away from his duties, and I would like, with the court's consent, to put him on out of turn.

Mr. Bruce: Might I interrupt? If your Honor please, yesterday, in an endeavor to speed matters along, I neglected to put in two exhibits relative to the patent notice being applied to the pump systems sold in accordance with the letters patent, and I presume, Mr. Mellin, that you would stipulate that the patent notice has been applied to the pumps

manufactured under the letters patent, the statutory notice? I assure you that it has.

Mr. Mellin: That is all right. No objection.

The Court: It is stipulated that there was affixed on the manufactured pumps the notice of the patent pursuant to the requirements of the statute.

Mr. Bruce: That is right, both patents.

The Court: Both patents. Is that agreeable, Mr. Mellin?

Mr. Mellin: Yes, your Honor. [222]

RICHARD GILMAN FOLSOM

called as a witness on behalf of defendant; sworn.

The Clerk: Will you state your name to the court?

A. Richard Gilman Folsom.

Direct Examination

Q. (By Mr. Mellin): Will you state your name, age and residence, Dr. Folsom?

A. Richard Gilman Folsom, age 42, residence Berkeley, California.

Q. What is your occupation?

A. Professor of mechanical engineering and chairman of the division, University of California.

Q. I understand that you were educated at the California Institute of Technology in mechanical engineering and have the degrees of Bachelor of Science, Master of Science, and Ph. D., is that correct?

A. That is correct.

Q. I also understand that, as you stated before,

(Testimony of Richard Gilman Folsom.)

that you are professor of mechanical engineering and chairman of the division of mechanical engineering at the University of California; I also understand that you are a Professor Mechanical Engineer of California, No. 119, is that correct?

A. That is correct.

Q. I also understand that you are a member of the executive committee of the A. S. M. E., the American Society of Mechanical Engineers, Hydraulic Division, is that correct? [223]

A. That is correct.

Q. I also understand that you are chairman of the American Society of Mechanical Engineers' Committee of Pumping Machinery, is that correct?

A. That is correct.

Q. And I also understand that you have published papers in the Technical Press, including design and performance determinations for jet centrifugal pumping system, is that correct?

A. That is correct.

Q. And I understand you were consultant for the United States Navy in the years 1941 and 1942 for the development of special submarine pumps, is that correct?

A. That is correct.

Q. I also understand you were consultant for the Ohio State University on Aerojet in connection with pumping problems, is that correct?

A. That is correct.

Q. I also understand that you have worked with the engineering divisions of the various pump com-

(Testimony of Richard Gilman Folsom.)

panies, including Byron Jackson, Western Pump, Peerless Pump Division of the Food Machinery, in connection with the design of centrifugal pumps, is that correct or incorrect?

A. That is correct.

Q. Doctor Folsom, have you read the patents in suit and do [224] you understand the construction and mode of operation of the pumping systems disclosed therein? A. Yes.

Q. That is, the patents that you have on your left, 958 and 258, Exhibits 3 and 4?

A. That is right.

Q. I hand you Italian patent No. 139,161, dated December, 1913—I can't tell the month—and ask you if you have examined that patent and understand the construction and operation of the pump therein disclosed.

A. I have examined this patent and the translation.

Mr. Bruce: If your Honor please, we would like to enter an objection to any testimony concerning the patent of 1913. No notice was given relative to this patent as required by Section 4920 of the Revised Statutes. It is flashed on us at the time of trial. A request was made by way of interrogatory for the disclosure of any patents which the defendants might use to negative invention, and no notice was given of the patent of 1913.

Mr. Mellin: May I respond to that, your Honor? At the time of trial it is slightly inaccurate to say that this patent and the copy of the translation——

(Testimony of Richard Gilman Folsom.)

The Court: I did not hear you.

Mr. Mellin: I say, to say that it is flashed on them at the time of trial is slightly inaccurate. They have had [225] a copy of it and a translation in their hands for ten days before trial or two weeks before trial. 4920, your Honor, which was adopted in 1879, provided in matters of this sort which is being argued, there had to be 30 days' notice given of proofs of this sort. However, 4920 was superseded by the Federal Rules of Civil Procedure, particularly Rule 8, B, and our Circuit Court of Appeals directly ruled that 4920 is no longer applicable, but that the Rules of Civil Procedure — and I have the authority here — the Rules of Civil Procedure control the matter of pleading.

With respect to the cases — and there are more than one of them — the one that we have in this circuit is *Crowell vs. Baker Oil Tools*, C. C. A. 9, 153 Fed. (2d) 973. In that case there was almost an identical situation. There was a motion to strike all the evidence on the ground that it did not comply with 4920, and the circuit court of appeals, through Judge Wilbur, said this: Appellant at the conclusion of the plaintiff's evidence moved to exclude from the court's consideration any of the 49 patents listed in paragraph 16 of the complaint, and the same list in plaintiff's answer to our counterclaim, on the ground that they had not been pleaded as required by the statute (USRS Paragraph 4920, 35 USCA Section 69), as patents or

(Testimony of Richard Gilman Folsom.)

printed publication, nor had they been pleaded in any way themselves as being anticipations or being pertinent in any regard to the case. The appellant specifies [226] error in the denial of this motion. It was denied. And, by the way, that motion was not renewed, and so it went off on another ground. The court said this:

“Therefore, it is unnecessary at this juncture to examine with technical nicety the allegations of the pleadings concerning these prior patents. However, it should be noted that the nature of the pleadings is now controlled by the new Federal Rules governing civil procedure in the district courts of the United States, and not by Section 69 of 35 U. S. C. A. (Patents) first enacted in 1870.”

The United States Code comments in there specifically provide that 4920 has been superseded by Rule 8B of the Civil Rules of Procedure, which make no such requirement.

Mr. Gray: If the Court please, there is apparently some conflict in the authorities. There is the recent district court case of Blanchard vs. Pinkerton, an opinion written just about a year ago by Judge Yankwich, in which he held that the notice was necessary, and cited some Supreme Court cases to the effect that this section applies. Apparently, as I look at it, this Section 4920 is more than a mere procedural statute. It is substantive law applying to

(Testimony of Richard Gilman Folsom.)

patents, and I think we have a conflict in the circuit on this question.

Also in the case of Crosley Corporation vs. Westinghouse, which was reversed on other points, states in its syllabus:

“Prior art patents and publications and alleged instances [227] of prior knowledge and use, which were not by notice given to the alleged infringer at least 30 days prior to trial, could not be urged for the purpose of anticipating or invalidating such patent, but could only be used for showing the general state of the art.”

Those cases are recent cases on the question.

And then we have the general principle that a rule adopted by a court cannot change the substantive law, and that case is the Washington & Southern Company vs. Baltimore; no rule of court can change or restrict jurisdiction nor can a rule abrogate or modify substantive law, and this is true whether the court to which the rules apply be one of equity or admiralty.

The purpose of that statute is so obvious, and it is an integral part of the law applicable to patents, and not in the case Mr. Mellin cited. In that case apparently the evidence was permitted to go in without objections.

Mr. Mellin: No, it went in with objection.

Mr. Gray: In any event, it turned on a motion

(Testimony of Richard Gilman Folsom.)

to strike. Of course, if it went in without objection, it would be too late to make a motion to strike later after it was in. But at the least, I think it resolves itself probably to a question of the discretion of the court in applying the law. This case has been pending a long time, and as I understand the facts the first notice that was given to Mr. Bruce was by a telephone conversation in which neither the name of the witness nor the [228] nature of his testimony was disclosed. Mr. Bruce asked expressly, who is the witness and what is he going to testify to?" And that information was refused Mr. Bruce. If that had been given then there would have been a lot more time, almost 30 days — 20 days anyway, and I think that fact certainly does not indicate good faith on the part of the opposing party. They could have given that much information. And your Honor will probably recall that when the question came up concerning the Italian patent here, *ex parte*, as to the production of that witness, Mr. Bruce attempted to ascertain what the nature of the testimony would be, and it was not freely disclosed, or disclosed at all, as I recall it, and I think the record here will show that it was directed more to amplifying the patent referred to in the citation of patents upon which they are going to rely.

The Court: This is not the witness whose deposition was taken?

Mr. Gray: No, this witness, however, is being asked a question concerning the patent which that

(Testimony of Richard Gilman Folsom.)

witness produced. That witness' name was Veronesi, but this witness is now being asked concerning the very patent in question.

Mr. Bruce: No, Mr. Gray, this witness is being asked a question of a patent relative to 1913. The Veronesi patent, that was referred to in the pleading, and concerning which the deposition was to be about, and as Mr. Hursh stated before your [229] Honor, the purpose of that deposition was to explain the patent. That patent that they were talking about was the Veronesi patent of 1937, as to which they had given notice in response to an oral interrogatory. This is an earlier patent.

The Court: You did not have notice until about ten days ago?

Mr. Gray: Until about ten days ago.

The Court: How many patents are you going to rely on?

Mr. Mellin: Not very many. I think five or six.

The Court: How many have you given notice of?

Mr. Mellin: I think probably all of them, but this one, which recently came to our attention. I would like to point out to the court that under any rule of law, any of the statutes, even when 4920 was in effect, the prior art patents could always be introduced to show the state of the prior art without any notice. So we are arguing about something, although I am absolutely convinced under the authorities and the statutes, that 4920 has been super-

(Testimony of Richard Gilman Folsom.)

seded by the Federal Rules of Civil Procedure. We are no longer required to plead them.

The Court: How many patents have you given notice of?

Mr. Mellin: We gave a lot of them, your Honor.

Mr. Bruce: 32, your Honor.

The Court: That is too many.

Mr. Mellin: We are relying on 9 at the most, including [230] these two Italian patents.

Mr. Bruce: At the time of the answers to the interrogatories, they said they were going to rely on all of them.

Mr. Mellin: It doesn't hurt you if I discard a lot of them. You are not injured.

The Court: I would have required you to limit the number, too. I have only felt the more patents you rely upon in anticipation, the weaker your case is, because all that shows is a lot of people try to solves their problem and did not succeed.

Mr. Mellin: Our point in citing a lot of these patents was that we had accumulated them and we tried to give them all we had.

The Court: It is not of much practical importance, because the testimony would be admissible, I suppose, to show the state of the art. But so far as the application of this section is concerned, the line between substantive and procedural law is sometimes pretty hazy. What might have been considered a very rigid necessity back in the days when the statute was adopted, in view of the voluminous

(Testimony of Richard Gilman Folsom.)

nature of patent litigation today, the desire to reform, to expedite, to streamline our procedure, I would be inclined to say that it is more procedural than substantive. Mr. Gray seemed to think it was substantive. It really has to do with the procedure substantially, because its purpose is to give the opponent a reasonable opportunity, which counsel said was 30 days in [231] the statute, to study into the patents that would be relied upon.

Mr. Mellin: The reason they were not given more notice, your Honor, on this particular 1913 patent was that there isn't apparently any copy of it in this country, and the first time it came into our hands was two days before we took this Italian's deposition. So they got it the day we took the deposition. It was not a matter of bad faith. Mr. Gray charges us with bad faith in not telling him what the witness would testify to. We did not know until he came to this country, which was three days before the deposition was taken, so we couldn't tell him except it was in conjunction with the manufacture and sale of these patented pumps. That is all we did know.

The Court: I will allow the testimony and see what it amounts to. You can reserve the right to strike if it appears it would be unfair or inequitable to allow the testimony to remain.

Mr. Gray: Your Honor, would it serve the purpose if it were admitted to show the state of the art at this time, and then in our briefs we could argue the questions of law that we discussed here?

(Testimony of Richard Gilman Folsom.)

The Court: I will just admit it, and if it appears that the admission of testimony as to the prior art, in the anticipatory phase of the matter, would be prejudicial, you can make a motion to strike and I will rule on it when I decide the case. It [232] doesn't make much difference which approach you take.

Mr. Gray: Then we will argue that as part of our argument in the briefs.

The Court: You can present the point which ever way you want to present it.

Mr. Mellin: I would like to say in that regard, however, that patents are always admissible to show the state of the prior art. Personally, I do not know the difference between anticipatory and state of the art.

The Court: Some of these things are quite technical.

Q. (By Mr. Mellin): Do you understand the construction and operation of the pump therein disclosed, Dr. Folsom? A. Yes.

Mr. Mellin: May I offer that patent in evidence as Defendant's next in order?

Mr. Gray: Our objection will be deemed to go all the way through?

The Court: You have a reservation of this point in the record.

(The patent to Veronesi, No. 139,161, was received in evidence and marked Defendant's Exhibit M.)

(Testimony of Richard Gilman Folsom.)

Q. (By Mr. Mellin): I hand you Italian patent No. 260,417, dated October something, 1927, issued to Hugo Veronesi, of Bologna, and ask you if you have examined that patent and do you understand the construction and the operation of the pumping system [233] therein disclosed?

A. I have examined this patent and an English translation, and do understand the operation of the pump disclosed.

Q. And the construction of it? A. Yes.

Mr. Mellin: I offer that patent, which is Italian patent 260,417 of 1927, in evidence as Defendant's next in order.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit N.)

Q. (By Mr. Mellin): Do you have with you the book I gave you, Doctor, including those two patents? A. Yes.

Q. Referring to that book, have you examined the Sulzer patent 704,144, of July 8, 1902, on a multi-stage centrifugal pump, and do you understand the construction and the operation of the pump therein disclosed? A. Yes.

Q. If the same question were asked you with respect to the Rateau patent, No. 730,842, of June 9, 1943, what would your answer be? Would your answer be the same or different?

A. This one also.

(Testimony of Richard Gilman Folsom.)

Q. Is the same true of Stepanoff patent 2,248,312, of July 8, 1941? A. That is correct.

Q. And is the same true or not of the Ensalin patent No. 1,494,595? [234]

A. That is right.

Q. With respect to pumping systems, have you examined the Jacuzzi patent No. 1,758,400, and do you understand the operation and construction of the device there disclosed?

A. I have examined the patent, and I do understand the operation.

Q. That is the patent of 1930, and the patent No. 2,150,799, of March 14, 1939, do you understand the construction and mode of operation of the pumping system there disclosed? Do you have that, Doctor? A. Right, and I do.

Q. Have you examined the German patent to Speck, No. 376,684, December, 1913, and do you understand the construction and operation of the pumping system there disclosed?

A. I have examined the patent, the English translation, and I do understand the operation disclosed.

Q. Have you examined British patent 382,592, to Schmid, and do you understand the construction and operation of the pumping system therein disclosed?

A. I have examined the patent, and I do understand the mode of operation of the patent disclosed.

Mr. Mellin: May I ask counsel, through the

(Testimony of Richard Gilman Folsom.)

court, at this time if they have any objection to the translations, copies of which we gave them, or should we prove them? [235]

Mr. Bruce: Did you give us copies of the translations?

Mr. Mellin: We gave you copies of the translation of the Italian patent 260 at the time of the taking of the Armstrong deposition, and we gave you a copy of the 1913 patent at the time of the taking of the deposition of Mr. Veronesi.

Mr. Bruce: No, you never gave us copies of the translations. I asked for them but they were not given to me.

Mr. Mellin: I apologize to you. I thought you had photostatic copies.

Mr. Bruce: I specifically asked for them, but they were not forthcoming.

Mr. Mellin: Do you have translations?

Mr. Bruce: We might agree that the translations might be used subject to any objection found on comparing, reserving objection and opportunity to correct them. Have you an extra copy of them?

Mr. Mellin: I am apologizing to you, Mr. Bruce, I thought at that time we gave you a translation of it.

Mr. Bruce: No, I specifically asked for that, and also I asked Mr. Hursh for them.

Mr. Mellin: We will bring you a translation of them at noon.

May I offer the Sulzer patent No. 704,144, as Defendant's Exhibit O?

(Testimony of Richard Gilman Folsom.)

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit O.) [236]

Mr. Mellin: The Rateau patent No. 730,842 in evidence as Defendant's Exhibit P.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit P.)

Mr. Mellin: The Stepanoff patent No. 2,248,312 in evidence as Defendant's Q.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit Q.)

Mr. Mellin: The Ensslin patent No. 1,494,595 as Defendant's Exhibit R.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit R.)

Mr. Mellin: The Jacuzzi patent No. 1,758,400 in evidence as Defendant's Exhibit S.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit S.)

Mr. Mellin: The Jacuzzi patent No. 2,150,799 as Defendant's Exhibit T.

(Testimony of Richard Gilman Folsom.)

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit T.)

Mr. Mellin: And the Speck patent in evidence as Defendant's Exhibit U; that is German patent No. 376,684.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit U.)

Mr. Mellin: And the British patent to Schmid, 382,592, [237] as Defendant's Exhibit V.

(The patent referred to was thereupon received in evidence and marked Defendant's Exhibit V.)

Mr. Mellin: May we mark the translations, your Honor, that appear in this book in evidence, the first Italian patent of 1913 for identification as Exhibit M-1, and the translation of patent 260,417, as N-1.

(The patent translations referred to were thereupon marked, respectively, Defendant's Exhibits M-1 and N-1 For Identification.)

Mr. Mellin: I gave you a copy of the translation of the German patent, did I not, Mr. Bruce?

Mr. Bruce: No.

Mr. Mellin: At the time of the Armstrong deposition?

(Testimony of Richard Gilman Folsom.)

Mr. Bruce: No, no translations given at the time of the Armstrong deposition. That is the very thing I was asking about, and I called your office afterwards.

Mr. Mellin: I offer the translation of the German patent as Defendant's Exhibit U-1 For Identification.

Mr. Bruce: Pardon me. That was a total of 9?

Mr. Mellin: That is correct.

(The translation of the German patent referred to was marked Defendant's Exhibit U-1 For Identification.)

Q. (By Mr. Mellin: Have you examined the various pumping systems manufactured by the Berkeley Pump Company, and do you [238] understand the construction and operation thereof, Mr. Folsom?

A. I have examined several of the systems manufactured by the Berkeley Pump Company, and do understand their operation.

Q. I call your attention particularly to Exhibit 5, which is in front of you, and ask you if you are familiar with the pumping system there shown, and know the construction operation of it?

A. That is correct.

Q. With respect to centrifugal pumps, Doctor, do you know whether or not prior to 1940 multi-stage centrifugal pumps were ones which had a low-pressure discharge from an early stage and a high-pressure discharge from a stage of higher pressure?

(Testimony of Richard Gilman Folsom.)

A. Yes.

Q. I call your attention to the book of patents which you have in your hand, and which have been offered in evidence, and direct your attention particularly to the Sulzer patent, Exhibit O, and ask you to very briefly tell us whether or not it discloses a multi-stage centrifugal pump.

A. Yes. The drawing of the patent shows a multi-stage centrifugal pump.

Q. How many stages? A. Four.

Q. Are these stages arranged in a single pump casing, or not?

A. They are in a single pump casing.

Q. Are the stages in series or in parallel? [239]

A. The stages are in series.

Q. By series we mean that the discharge from one impeller feeds into the intake of the succeeding impeller or stage? A. That is right.

Q. Then is the pump shown in the Rateau patent—are the stages stacked for operation in series with the discharge of each stage feeding directly into the next higher stage in the series?

Mr. Bruce: You are going pretty fast. We can't find these. That was Rateau what number?

Mr. Mellin: Sulzer, Exhibit O.

Mr. Bruce: Sulzer you just talked about.

Mr. Mellin: I am still asking about it.

The Court: You used another name, and that is what confused them.

Mr. Mellin: I beg your pardon. I meant the

(Testimony of Richard Gilman Folsom.)

Sulzer patent. May the question be corrected, your Honor?

The Witness: May I have the question again?

Mr. Mellin: I will re-word it.

Q. Do I correctly understand that the stages in the Sulzer patent are stacked for operation in series with the discharge of each stage feeding directly into the next higher stage in the series?

A. That is right.

Q. Will you state whether or not the Sulzer patent discloses a [240] discharge outlet for an early stage of the series?

A. It shows such an outlet.

Q. Does it or does it not disclose a discharge outlet from a succeeding stage, let us say, the last stage in the series?

A. It shows a discharge from the last stage.

Q. I notice in Fig. 2 of the Sulzer patent there is a valve control for the pump and the motors. Is that a valve control which you can selectively discharge from any of the stages of the pump, any one of them?

A. That is the purpose of the valve shown.

Q. I call your attention to the Rateau patent, 730,842, Exhibit P, and I ask you whether or not that discloses a multi-stage centrifugal pump.

A. That is correct.

Q. How many stages?

A. Two stages are shown.

(Testimony of Richard Gilman Folsom.)

Q. How many discharges does this patent disclose from this pump? A. Two.

Q. Where is the first discharge?

A. The first discharge is at Valve 37, at the end of the first stage.

Q. And the chamber at the end of the first stage is marked 33? A. That is correct.

Q. Where is located the second discharge that you refer to?

A. The second discharge is through the valve No. 38. [241]

Q. Are each of these discharges controlled by a valve or not?

A. They are controlled the valves indicated.

Q. Is the Rateau patent so constructed that both impellers can be simultaneously driven by the same shaft?

A. Under certain conditions both impellers can be driven.

Q. And it is also provided that they can be selectively driven, isn't that so?

A. That is right.

Q. Assuming both impellers are being driven in the Rateau patent, P, the suction enters the inlet of the first stage, is that correct?

A. That is right.

Q. And maintaining that assumption, would any fluid discharged from the first stage enter the inlet of the second stage?

(Testimony of Richard Gilman Folsom.)

A. The amount of fluid entering the second stage depends on the position of control valve 37.

Q. Is this a horizontal pump, Doctor, or a vertical pump?

A. This is a horizontal shaft pump.

Q. What would be the condition of the inlet opening or eye of the second stage when the pump is in operation?

A. Due to the arrangement of the discharge valve, the eye of the second stage would be maintained submerged in water at all times.

Q. What effect if any, would that have on the operation of the second stage, as far as delivering water to it?

A. In order to deliver water from the second stage, the inlet must be submerged. [242]

Q. That is from the second stage. Is that condition of submergence and delivery of water to the second stage the same or unlike the condition shown in the pump in Exhibit 5 as far as the second stage is concerned?

A. It is alike.

Q. In other words, the second stage in the Ra-teau patent and the second stage in the Berkeley pump device shown in Exhibit 5 are both fed because they are maintained submerged during the operation of the pump, is that correct or incorrect?

A. That is correct.

Q. You were speaking of quantities of discharge. How would you vary the quantities of discharge, Doctor?

A. The quantity of discharge can be controlled

(Testimony of Richard Gilman Folsom.)

and varied within the operating limits of the pump by adjustment of valves 37 and 38.

Q. Is that 35 and 36?

A. That is the outlet. The 37-38 number is on the valve.

Q. What?

A. The numbers 37-38 appear on the valve; 35-36 appear as outlets of those valves.

Q. The flange. I beg your pardon, Doctor. In the Rateau patent, Exhibit P, is there any provision for mechanically positively dividing the water which is discharged from the first stage to insure that some of the water is directed to the inlet of the second stage? [243]

A. No.

Q. Is the condition in the Rateau patent in that regard the same or different than the division of water in the Berkeley pump as illustrated in Exhibit 5?

A. It is the same condition. In other words, there is no mechanical deflector veins used in either pump.

Q. And both dependent upon having an outlet higher than the outlet of the second stage in order to deliver the water from the first stage to it?

A. The outlet is placed higher so there is a hydrostatic head placed on the section in order to keep the section submerged for operation, that is, the second stage section.

Q. That is true in the Rateau patent, Exhibit P?

A. That is right.

Q. Is that true or not true in the Berkeley pump

(Testimony of Richard Gilman Folsom.)

as illustrated in Exhibit 5?

A. It is true in Exhibit 5.

Q. With reference to that patent 285 in suit, with particular reference to the second stage of that patent, in which is the low pressure takeoff, does that patent include definite mechanical means for positively dividing the output of the second stage or not? A. Yes, it does.

Q. Would you turn to the Stepanoff patent, Dr. Folsom, Exhibit Q, which is No. 2,248,312, and would you state whether or not [244] that discloses a multi-stage centrifugal pump or not?

A. It is a multi-stage centrifugal pump.

Q. Is this what is known as a hot oil pump?

A. It is a type of pump that is used as a hot oil pump.

Q. And that is the reason for its heavy and bulky construction?

A. It is a high pressure installation.

Q. Does this Stepanoff patent and the pump therein disclosed have more than one discharge?

A. There are two discharges shown.

Q. Are those two discharges from different stages in the pump or from the same stage?

A. They are from different stages, one from the fourth stage and one from the ninth stage.

Q. So under normal operation you can take off two different pressures from the pump?

A. That is correct.

Q. Will you turn to the Ensslin patent, Doctor, No. 1,494,595, and I ask if that patent discloses a

(Testimony of Richard Gilman Folsom.)

multi-stage centrifugal pump? A. It does.

Q. Does that patent disclose discharges of fluid for more than one stage? A. It does.

Q. Then would you say or would you not say that that shows selective discharges from the various stages of the pump in the [245] Ensslin patent, Exhibit R?

A. This patent shows discharges from several stages through control valves to adjust the amounts taken off at any particular stage.

Q. You did not use the control valve in the sense that we have probably been using the control valve here as a variable orifice, did you, Doctor, when you said that?

A. Any control valve is a variable orifice.

Q. I beg your pardon. I will not get into that discussion. Will you turn to the Jacuzzi patent, Exhibit S? That patent shows what is known as a jet well pumping system.

A. Pardon me. Is that No. 400?

Q. That is right, Exhibit S. That is a centrifugal jet pumping system, Doctor, is it or is it not?

A. As indicated on the patent, this is a centrifugal type of pump.

Q. And that operates a jet from the discharge of the pump, what we have called an injector pump?

A. Part of the discharge from the centrifugal pump is used to operate the injector.

Q. Is there or is there not a water discharge from the suction line just below the intake of the pump to service shown in that patent?

(Testimony of Richard Gilman Folsom.)

A. There is a discharge line to service, which is connected in on the suction line to the centrifugal pump or the discharge line [246] from the injector pump, both being the same thing.

Q. Doctor, I call your attention to Exhibit A, and from that diagram will you state whether or not, disregarding for a moment the discharge B, which I am pointing to, you understand the mode of operation of the ssytem there illustrated?

May the witness step down, your Honor?

The Court: Yes.

Mr. Mellin: If he is like me, I would not be able to see it from there.

The Witness: Disregarding this suction——

Mr. Mellin: Yes, disregarding B.

The Witness: Disregarding B, this is a conventional type of centrifugal jet pumping system.

Mr. Bruce: Pardon me, Mr. Mellin. It is very difficult to shift around in our book of patents to find what counsel is talking about, because he is going very rapidly. I wonder if we could have just a moment to arrange our book.

The Court: Yes, we will take a recess.

(Recess.) [247]

Q. Now, do I understand that the reference to the pumping system shown on Exhibit A, with the discharge B from the low pressure discharge through B from the suction pump, do you understand the system when such a connection is made?

(Testimony of Richard Gilman Folsom.)

A. Yes.

Q. And is that substantially the pumping system disclosed in the Jacuzzi patent of 1930, Exhibit S?

A. Yes, that being Patent No. 400.

Q. Disregarding the fact that that patent is directed, as far as the patent goes, solely to the ejector.

Now, Dr. Folsom, if you move the discharge B on Exhibit A from the suction line and put it where I am dotting it on the second stage and labeling it B-1, would you say that moving it from the suction line to that second stage would impart to that system a new or different mode of operation than it had when the discharge B was on the suction line?

A. The position of the low pressure discharge does not change the mode of operation of the pumping system.

Q. Would the difference in result obtained by moving the discharge B from the suction line to the second stage as marked at B-1, be one of difference in kind or a difference in degree?

A. Well, there is one that is difference in degree, because the location of the particular output or the particular location of that nozzle depends upon the requirements needed by the particular installation. [248]

Q. And that difference would be one in the discharge pressure? A. That's right.

Q. And that would be the only difference, Doctor, or not?

(Testimony of Richard Gilman Folsom.)

A. Right. The mode of operation is the same, the discharge takeoff is located from engineering considerations to give you the required pressure for the installation considered.

Q. Now, assuming, Doctor, that the various stages of the centrifugal pump disclosed in Exhibit A are of conventional centrifugal pump design, would there be a requirement or not a requirement of a control valve or its equivalent on the discharge B-1 under normal—in other words, that the pumping system may operate in the normal commercially acceptable fashion?

A. Considering a normal multi-stage centrifugal pump, a control valve or its equivalent would be necessary in order to operate the centrifugal jet pumping system under its normal conditions.

Q. Now, however, if you modify that—strike that.

Mr. Bruce: Would you read that last answer back, Mr. Reporter?

(Record read.)

Q. (By Mr. Mellin): When you say a control valve or its equivalent, would you explain briefly what you mean by its equivalent?

A. The equivalent may be a back pressure which is created by any means; that the pressure must be controlled and the rate of flow through that section controlled in such a way that sufficient water goes to the upper stage in order to operate the jet. [249]

(Testimony of Richard Gilman Folsom.)

Otherwise the system will no longer be satisfactory.

Q. Now, calling your attention to Exhibit 5 and also calling your attention to the fact that the element 5 is a gate valve and normally wide open, but that there is a pressure labeled 5-A, what is the condition created by pressure in that tank as far as pressure within the pump itself is concerned? What influence, if any, does the pressure built up in tank 5-A have on the rise or fall of pressure within the chamber marked 8-A on Exhibit 5?

A. When the pump is operating so that there is a discharge through the valve into the tank, there is a difference in pressure between tank 8-A, or the chamber 8-A, and the tank 5-A; the difference of pressure depending upon the rate of flow through that system. However, the pressure in the part 8-A in the chamber here——

Q. 8-A?

A. ——will be controlled by the pressure that is in the tank 5-A.

Q. Because the tank fills up that back pressure and restricts the flow of fluid into it or not?

A. There is a pressure differential between these two. If this pressure is high, this one will be high; if this pressure is low, this pressure will be low.

Q. Now, would that pumping system operate satisfactorily, normally satisfactorily, if the pressure in the chamber 8-A were at atmospheric pressure, assuming that there wasn't any [250] tank or any other restriction there?

(Testimony of Richard Gilman Folsom.)

A. The pump will operate with a discharge to atmosphere, but it is not a normal or efficient, satisfactory operating condition.

Q. Now, with the arrangement shown in Figure 5, is there any possibility of starving the feeding of water to the second impeller for delivery to the jet? A. No.

Q. And that is because of the hydrostatic head of the fluid in the pumping system?

A. The discharge is at an elevation greater than that at the suction intake for the second stage, and therefore the effect of gravity is to keep the second stage submerged so that you always have this impeller completely filled, giving you the pressure which is necessary to operate the injector at the lower end of the system.

Q. And as I understood you this morning—and correct me if I am in error—that is the same method of supplying the impellers, the higher stage impellers from the lower stage impellers in the Rateau and the Sulzer patents which we discussed, multi-stage pumps?

A. That's correct, that the action in the chambers are such that the suction of the following stage is submerged so that it has water in which to operate.

Q. Thank you, Doctor. Now, except for that difference, Doctor, [251] and pointing to—strike that. Now, Doctor, with respect to Exhibit A and disregarding the discharge B-1, but again placing

(Testimony of Richard Gilman Folsom.)

the discharge B into the suction line, would you say whether or not that would be an efficient pumping operation for, say, the pumps of irrigation where you do not have to elevate the water?

Mr. Bruce: I didn't get the first, Mr. Reporter. Would you read that?

(Record read.)

Q. (By Mr. Mellin): Do you understand the question, Doctor?

A. Yes. The placing of B-1—pardon me; on the intake pipe to the centrifugal portion?

Q. In other words, having the discharge at B in Exhibit A.

A. Right. It is a satisfactory pumping system for supplying irrigation water.

Q. Would it be under certain pumping conditions where you do not have to go over low rises—you know, hills, where you do not have to raise the water too high, would it be just as efficient—change that to—would it be less or more efficient for certain conditions than if you had the low pressure discharge at the second stage?

A. If I take your question to mean as the pressure increases, as the pressure increases, it is necessary to change this outlet from its present position to a higher stage of the centrifugal pump at outlet—— [252]

Q. That is, if the desired pressure is increased?

A. If the desired pressure is increased, then the

(Testimony of Richard Gilman Folsom.)

takeoff point must be at a point equal to or higher than the desired pressure. For the most efficient operation of the system, the takeoff should be at as low a point as it possible in order to meet the desired pressure.

Q. Now, applying that to the purpose of irrigation, where the field to be irrigated is no higher than the discharge B, would that be the point of highest efficiency to take the low pressure water or not?

A. It would be for irrigation purposes, where you require no pressure at the outlet.

Q. Now, Doctor, calling your attention to the Italian patent, M, do you have a copy of it in your folder, Doctor?

A. That is the 1913 patent.

Q. That is correct.

A. I have a copy.

Mr. Mellin: Would you agree that this is a correct photographic enlargement, counsel?

Mr. Bruce: Well, is it?

Mr. Mellin: Yes.

Mr. Bruce: I will take your word for it, Mr. Mellin.

Mr. Mellin: May I offer the chart which I have in my hand, as M-2?

The Clerk: M-2. [253]

Mr. Mellin: May I offer that as M-2 in evidence? It is an enlargement of the drawing of the Veronesi patent, Exhibit M of 1913.

(Whereupon enlargement of Veronesi patent, 1913, referred to above, was received in evidence and marked Defendant's Exhibit M-2.)

(Testimony of Richard Gilman Folsom.)

Q. (By Mr. Mellin): Now, Doctor, would you from the enlargement of the drawing of the Veronesi patent, Exhibit M, which chart is Exhibit M-2, briefly tell us the construction of the pumping system there disclosed and the circuit which the water or the pumping circuit of the system therein shows?

A. This is a combined centrifugal jet pump, pumping system, water level located at this point in the well with a suction intake pipe coming up to the jet pump. Pressure water to drive the jet pump is supplied by this portion of the centrifugal pump which supplies high pressure water, which goes down.

Q. This portion of the centrifugal pump is marked——

A. 1.

Q. 1 on the chart, yes.

A. Which is composed of three stages. Discharging low pressure water through the pressure pipe 3, which then feeds into the jets of the injector, where it is given a high velocity; then it goes through the mixing chamber and in that process——

Mr. Bruce: Pardon me.

Mr. Mellin: Am I in the way? [254]

Mr. Bruce: You are standing in front of the drawing.

Mr. Mellin: I am sorry.

The Witness: Do you wish me to repeat?

Mr. Bruce: Yes, I didn't get that because he was in front.

A. (Continuing): We have the three stage por-

(Testimony of Richard Gilman Folsom.)

tion of the centrifugal pump indicated by 1, which produces high pressure water, which is then forced down the conduit, 3, where it feeds the jets of the injector pump. The water discharges, this high pressure water discharges from the injector at a high velocity, where it is then mixed with the water under the conditions that have taken in through the suction pump, 6; the combination of the two then being under pressure, it is then forced up the pipe, 2, where it then goes to the centrifugal pump. At this point it is then divided, part of it going to the third stage, number one portion of the centrifugal pump, where it is then recirculated. The amount of water that comes in through the suction pipe 6 then passes through the low stage portion of the centrifugal pump indicated by 8, and is discharged from the system.

Q. For use?

A. For whatever use is desired.

Q. And that discharge is labeled 8?

A. That is correct.

Q. Now, I understand from your testimony that there were two stages of low pressure and three stages of high pressure [255] indicated?

A. The drawing indicates that.

Q. And in normal engineering convention, that would indicate that the pressure to the pipe, 3, is greater than the discharge from the pipe 3 from the high pressure portion of the pump, it is greater than the pressure discharged from 8, from the low pressure portion of the pump, is that correct?

(Testimony of Richard Gilman Folsom.)

A. That is based on the indication that these stages are similar, therefore the pressure is directly proportional to the number of stages concerned.

Q. And conventionally they are indicated as being similar?

A. Conventionally shown in this diagram.

Q. That's right. Now, would you say that those stages are in series or in parallel, Doctor?

A. The three stages of the high pressure portion are in series, the two stages of the low pressure portion are in series. However, the high pressure portion is in parallel with the low pressure portion of the centrifugal pump.

Q. And that is the distinction between that, parallel and in series; in series some of the water goes through all of the stages and some of it only goes through part of the stages if you have a separate takeoff?

A. Well, in series operation the water from one impeller goes through the following ones.

Q. That is, if you have a low pressure takeoff, part of the [256] water only goes through——

A. Part of the water may only go to one or more stages, but in effect the water would go through, we will say, the first stage and succeeding stages—you may draw off a portion on the way.

Q. I notice that there is a multiplicity of jets in the jet pump here; does that change it, other than changing perhaps its efficiency, the efficiency of the system? Does that change the mode of operation?

(Testimony of Richard Gilman Folsom.)

A. The mode of operation is exactly the same. This is a mere matter of engineering proportion and design, as to whether you use a single annular or concentric or any other type of nozzle arrangement.

Q. Does that Italian patent disclose to you an operative pump structure system? A. Yes.

Q. And, Doctor, what about the efficiency of a pump of that character, where you are dividing it? Is it greater or less than if you had them in series, such as the Berkeley pump, No. 5, that you have alongside of it?

A. The efficiency is in the same order of magnitude. It depends more on the proportioning, the specific speed and other engineering features of the particular design is a consideration.

Q. In other words, that would be a matter of engineering skill, the skill of an engineer? [257]

A. Right.

Q. Thank you, Doctor. Now, Doctor, disregarding the fact that the water is divided between the high pressure and the low pressure portions of the pump in the Italian patent, M, is there any substantial difference in the mode of operation between the pumping system shown in that Italian patent and the mode of operation of the Berkeley pump shown in Exhibit 5?

A. May I have that question again?

(Record read.)

A. Neglecting the details of the arrangement of

(Testimony of Richard Gilman Folsom.)

the centrifugal pump, the pump system is the same?

Q. Now, calling your attention, Doctor, to the Italian patent, the later Italian patent, the Veronesi patent of October, 1927, which is Defendant's Exhibit N——

Mr. Mellin: This is an enlargement.

Mr. Bruce: Very well.

Mr. Mellin: And I mark this and offer it in evidence as Defendant's N-2, the enlargement of the drawing.

(Whereupon photographic enlargement of Veronesi patent of 1927, referred to above, was received in evidence and marked Defendant's Exhibit N-2.)

Q. (By Mr. Mellin): Now, you understand the construction and operation of that device disclosed, the pumping system disclosed in that patent, do you, Doctor? A. Yes. [258]

Q. Now, does that Italian patent disclose a multi-stage centrifugal pump? A. Yes.

Q. And how many stages does that patent disclose to you in that centrifugal pump?

A. Two stages are shown in section and one is indicated otherwise, making a total of three.

Q. And the first stage, what I am indicating, is that the first or some other stage?

A. This is the first stage.

Q. That I have marked by No. 1? A. Right.

Q. And this stage is what? A. No. 2.

(Testimony of Richard Gilman Folsom.)

Q. That I have marked No. 2. And this stage is what? A. 3.

Q. That I have marked No. 3. Now, does this centrifugal pump in this Italian patent have one or more discharges?

A. The drawing shows two discharges.

Q. And would you indicate them for me to mark, please?

A. One is indicated by the nozzle, 9.

Q. I will mark that 4.

A. And the other is indicated by this flange.

Q. Which I will mark 5. [259] A. Right.

Q. How do you use the word "indicated," Doctor, in your language? Do you mean——

A. Indicate, to me, I would define as the drawing shows that those are the pumps for which these elements are disposed.

Q. Now, where does the water come from which discharges through the discharge outlet 4, Doctor?

A. The convention of the drawing shows that the water coming out of discharge 4 comes from the first stage.

Q. And that is the one which I have marked 1?

A. Following stage 1.

Q. And at that point is the water divided or not divided, the intake water?

A. Well, the water passes through the centrifugal portion of the pump through the guide veins and the exit, and then into the annular space, where a portion of it goes out this outlet, the following is

(Testimony of Richard Gilman Folsom.)

guided back into the suction eye of the second stage runner.

Q. And thence to the discharge, 5?

A. No, through the third stage and then to discharge 5.

Q. And from discharge 5 it goes to the pipe, drive pipe 2? A. That is correct.

Q. And thence through the jet or whatever you call it?

A. Follows through the jet, jet 6 into the injector, through the diffuser section 7, and follows up the pressure pipe to the [260] intake portion of the centrifugal pump.

Q. Now, does that drawing, which is represented in an enlargement of Exhibit N, N-2, disclose to you as an engineer the fluid cycle of the pumping system disclosed in that patent, the fluid path or mode of operation? I will strike all of it.

Can you, from the drawing, Exhibit N, trace for us and give your explanation of how you can trace it, the mode of operation of the pumping system shown in that Italian patent N?

A. Mode of operation—if I may start where I did with the other one, at the outlet of the high pressure centrifugal pump; in other words, this case would be the outlet flange, 5, from the third stage. Where the water is under the highest pressure in the system. It is then fed to the pressure pipe leading to the ejectors. Such pressure pipes being indicated by the center line of this figure. The flow of

(Testimony of Richard Gilman Folsom.)

the hydraulic circuit being shown by the arrows indicated at this and other points throughout the drawing. The arrows indicating the hydraulic flow, the direction of flow of the fluid, and the center line indicating a symmetrical section about that line, which then the pressure water comes down, goes into the ejector, where it then mixes with the water that is drawn into the foot valve, through the diffuser action, and it is then carried up the pipe, 8, which is the discharge pipe from the injector and the inlet pipe to the suction.

Q. Wait a minute. The inlet pipe is in dotted lines? [261]

A. It is shown in dotted lines.

Q. Which I number 6.

A. In a conventional fashion.

Q. And in full in No. 2? A. That's correct.

Q. As 6.

A. So the intake pipe comes in through No. 6 to the first stage of the pump, water then passes through the first stage into the surrounding chamber, where a portion of it then goes out the discharge, nozzle 4, the remainder going to the second stage, passing through the second stage, and then into the third and back to complete the circuit.

Q. Now, do you find that circuit entirely traced by arrows on exhibit, on the drawing of the Italian patent, Exhibit N, and on the enlarged chart, Exhibit N-2?

(Testimony of Richard Gilman Folsom.)

A. The arrows indicate a complete hydraulic circuit.

Q. Thus such as you have described?

A. For the system, yes.

Q. Now, I notice what seems to be a bolt extending longitudinally through the pump at the top and bottom, to hold the various stack sections together; would you explain, please, whether or not that blocks the discharge of water from the first stage through 9 or not?

A. It does not necessarily block the discharge passage, because the drawing shows a flow passage through that portion. [262]

Q. Then as an engineer, what would that indicate to you as to the nature of the passage? Would the drawing indicate to you—what would it indicate to you as to the nature of the patent from the chamber of the first stage through outlet 9 or 4?

A. The drawing as indicated here would show that that passage would have to divide in order to pass around the bolt that is shown in Figure 2, which is the same one that is shown passing through the discharge nozzle.

(Conversation among counsel out of hearing of reporter.)

Q. (By Mr. Mellin): Doctor, I show you what appears to be a drawing of a multi-stage pump and ask you if in that drawing there is a similar bolt and boss in a discharge passage way of a pump and

(Testimony of Richard Gilman Folsom.)

indicated by the same convention as in the Italian patent on the drawing in N-2?

A. This drawing shows a similar situation mechanically, the difference being that this is a stud instead of a bolt passing through that section.

Q. Now, the difference between a stud and a bolt is that a stud has got a nut only on one end—I mean, a head only on one end?

A. A stud has threads on one end, which is then screwed into a block, rather than having a head on it. Otherwise, the nut on the opposite end is the same.

Q. As far as the passage way is concerned, that drawing which I have handed you shows the same conventional, shows by the same [263] conventional means that stud or bolt passing through a discharge outlet of a centrifugal pump? A. That's right.

Mr. Mellin: I offer in evidence as next in order, to illustrate the witness' testimony——

The Court: What is the diagram?

Mr. Mellin: Pardon, sir?

The Court: I say, what is the diagram?

Mr. Mellin: I beg your pardon. May I see it?

The Court: I mean, where does it come from?

Mr. Mellin: This is a catalogue sheet out of Sigma Pumps for Great Britain, at Gateshead, England.

Q. (By Mr. Mellin): You took it out of their catalogue, Doctor, did you? A. That's right.

The Court: Well, I mean——

(Testimony of Richard Gilman Folsom.)

Mr. Mellin: The date is unimportant, your Honor. I mean, it is drawing convention, it is not a prior art.

The Court: Well, what are you putting it in for?

Mr. Mellin: Just to illustrate the witness' testimony. There is quite a controversy, your Honor, that this used the same drawing convention to show that structure as it does in this pump.

The Court: Say that again. You said it a little fast for me.

Mr. Mellin: I am sorry. I am introducing these two in evidence to show that this manner of drawing, a bolt going through [264] a discharge outlet, is not uncommon, and that that is the conventional way of indicating it.

Q. I also show you, Doctor, a sheet catalogue of a hot oil pump, types so-and-so,—

Mr. Bruce: If your Honor please, I would like to enter an objection to this testimony, because foreign patents must speak for themselves on their face and when you have to resort to other means to interpret what a foreign patent means, you are going outside of that which is admissible, and therefore I objection to the admission of this document.

The Court: Well, I understood counsel to say that this drawing was offered, this drawing from the catalogue, was offered to illustrate—that is the way he put it—the witness' testimony. I don't know exactly what that means.

(Testimony of Richard Gilman Folsom.)

Mr. Bruce: In other words, your Honor, there doesn't seem to be anything shown on the drawing——

Mr. Mellin: In so many lines.

Mr. Bruce: ——in N-2, a passage or any means shown on the drawing an opening whereby the water passes through, discharge 4, so they resort to some other document to show what this one means.

Mr. Mellin: That is not the purpose at all. We are not resorting to other ones to show what this means, we are resorting to other documents only to show that that is the standard conventional way of illustrating this type of structure. The [265] drawing convention.

The Court: You are offering this to show that the technical people understand by that drawing——

Mr. Mellin: That it means a certain thing.

The Court: Yes, that it means a certain thing.

Mr. Mellin: Yes, your Honor, which is illustrated by the manner in which it is used in catalogues. It is used in engineering convention, which he testified this was. It is not to explain the Italian patent or to supplement it—we don't need that. But it is to explain what he means by engineering convention to illustrate his testimony.

The Court: It may be admitted for that purpose.

(Whereupon drawing No. VA9223 of the Sigma Oil Pump, referred to above, was received in evidence and marked Defendant's Exhibit W.)

(Testimony of Richard Gilman Folsom.)

Q. (By Mr. Mellin): I show you the catalogue sheet of Sigma Pump, of Gateshead, Great Britain, and I ask you if that drawing uses the same or different convention to disclose a bolt passing through the intake and discharge opening of a centrifugal pump?

A. The basic situation is the same. This is a wash drawing instead of a cross hatched.

Q. If it was a cross hatched—but the engineering convention would show that that bolt passes through the intake and discharge? [266]

A. That's right.

Mr. Mellin: I offer in evidence at Defendant's exhibit next in order, for the purpose of illustrating the witness' testimony, this drawing.

Mr. Bruce: For the purpose of illustrating the witness' testimony?

Mr. Mellin: For the same purpose, your Honor.

The Court: All right.

(Whereupon drawing in booklet entitled "Looking Forward," referred to above, depicting Sigma Oil Pump, was received in evidence and marked Defendant's Exhibit X.)

The Court: Well, what really is the purpose of the testimony is, as I get it now, while it is going in, that when a technician says, "I read this Italian patent and it discloses to me that the function is thus-and-so, that it functions in a certain way"—now to substantiate that that is right—"I want to

(Testimony of Richard Gilman Folsom.)

show you that in catalogues it is demonstrated in the same way." Is that what you mean? Why do you have to——

Mr. Mellin: Well, he said first that the arrow through here following the flow cycle was a conventional way of showing that there was a passage. He also said that this type of a drawing section was the engineering convention for showing that the passageway was on both sides.

The Court: It is sort of a collateral and cumulative——

Mr. Mellin: Just to show you what he meant by drawing [267] convention, your Honor. The engineering convention for this type of situation.

The Court: No, you are going further than that, aren't you? You are trying to prove that he is right in saying that that is the way he understands the diagram, because somebody else does.

Mr. Mellin: Well, I didn't rely on it for that purpose—just to illustrate it, the ordinary use of that convention, so that I can show it wasn't merely his opinion that that was the convention.

Mr. Bruce: Well, I think it only serves to clutter up the record, your Honor.

Mr. Mellin: Well, I think Mr. Bruce, perhaps——

The Court: Well, as far as I can see, it is going to be cluttered up, anyhow; a little more cluttering up won't hurt anything.

You don't have to rush so much, Mr. Mellin. I notice that you are proceeding so rapidly. Maybe

even the Reporter, who is very efficient, is having a little trouble. I don't mean that we have to save time by either attorney having to just push himself to the point where he can't take the necessary time to address himself properly to it. But I don't believe that it is ever proper to save time that way because you have to present whatever you want, both sides, adequately.

Mr. Mellin: I understand, your Honor.

The Court: The saving of time is involved in the [268] unnecessary types of evidence and things like that, rather than that the lawyer has to drive himself like one of those pistons (indicating).

Mr. Mellin: I understand, your Honor.

The Court: We will—this will take a little while longer, will it?

Mr. Mellin: Yes, your Honor.

The Court: I think we had better take the noon recess.

(Thereupon a recess was taken to 2:00 o'clock p.m.) [268-a]

Afternoon Session, Friday, May 13, 1949

The Clerk: Jacuzzi Brothers, Inc., vs. Berkeley Pump.

RICHARD GILMAN FOLSOM

resumed the stand.

Direct Examination
(Continued)

By Mr. Mellin:

Q. At the close of the morning session, Dr. Folsom, I showed you a centrifugal pump casing which is cut away and which was labeled Exhibit F-1 to the Veronesi deposition.

(Mechanism referred to had been placed upon small table in front of witness stand prior to adjournment.)

Q. I ask you whether or not the construction of that casing correctly physically illustrates the pump casing disclosed in the Italian patent Exhibit N, as the drawing shows that construction to you as an engineer?

Mr. Bruce: Now we would like to interpose an objection in connection with this structure. Is that the purpose, that of illustrating the witness' testimony?

Mr. Mellin: Solely.

Mr. Bruce: Well, if your Honor please, this is an attempt to bring in by indirection that which we don't believe the parties have a right to bring in by direction. He has identified a particular structure and he is trying to bring in here a silent witness in that physical form to corroborate this witness' testimony. Now, he has already put in the record two

(Testimony of Richard Gilman Folsom.)

exhibits [269] to illustrate his testimony. I see no excuse for attempting to corroborate his testimony by a physical exhibit. He has testified, and we have here, the Veronesi structure which must be interpreted from its face. He has brought in this to supplement his testimony or to illustrate it, and there are already two physical exhibits in the matter of showing how it could be done. Now he wants to bring this in, still a third physical exhibit, not for the purpose of supplementing his testimony, but of corroborating his testimony. I think it is entirely improper.

The Court: Well, what is this casing?

Mr. Mellin: This casing is a pump casing, your Honor, and, as your Honor realizes, the patent cases being highly technical and the drawings directed to engineers and not to laymen, we have found over the years that a physical structure illustrates it better.

The Court: Was this made specifically for the purpose, constructed specifically for the purpose of using it in this case, or is this just somebody's pump?

Mr. Mellin: This is somebody's pump which has been cut.

The Court: Whose is it?

Mr. Mellin: Veronesi's. Your honor, I want to limit my offer. Now,—

The Court: You want to limit it?

Mr. Mellin: I haven't offered it in evidence yet,

(Testimony of Richard Gilman Folsom.)

but I do say this, that where an engineer or one skilled in the art, to [270] whom all patents are directed, and I want to correct counsel: There isn't any difference between the varied degrees of disclosure in foreign patents; some of the cases so hold, and the late cases say that they are entitled to the same rule of interpretation as an American patent.

Now, here is a drawing that to an engineer illustrates a certain structure. Now, here to a layman is something he can see in the physical embodiment. Now, the witness has testified that to him this indicates a certain physical structure, and now I would like to——

The Court: Well, we have frequently admitted in these cases models which witnesses have testified were constructed in accordance with the teachings of a drawing in a patent, for the purpose of physically showing what the drawing teaches. That has been a permissible practice, of course.

Mr. Mellin: For the 15 years I have been practicing patent law, your Honor.

The Court: Now, if we treat this—of course, if the foundation is laid, and I don't know what the witness is going to say, but if this is a correct model of what the drawing teaches, I don't see any objection to that.

Mr. Bruce: Well, I should say——

The Court: If that is what it is.

Mr. Bruce: It shouldn't be identified as a particular pump, coming from a certain source. [271]

Mr. Mellin: Well, I made no attempt to.

(Testimony of Richard Gilman Folsom.)

The Court: Well, that was my fault; I asked counsel where it came from, more so that I could understand what this particular controversy is about a little more, and rule more intelligently upon it. But apparently——

Mr. Mellin: I wasn't going to say anything about its origin, your Honor; I wouldn't have thought it would be proper for me to do it. All I wanted to do was to use it for a model.

The Court: If you are going to use it as a model for that drawing, I don't see any objection to that; do you, counsel?

Mr. Bruce: Well, the witness has explained that the drawing—he understands the drawing, he has explained the drawing to the Court, and he has already supplemented his testimony by two other exhibits to satisfy that. Now, how far do they want to go? If they have this, it would just corroborate, rather than supplement.

The Court: I think both sides might have a justifiable doubt of my mental capacity to understand these drawings and it is true that I can, with the simple equipment that I have, understand this maybe a little bit better than I can the drawing. That is all. I don't think that any harm can come to either side by the use of so-called models.

Mr. Bruce: Well, I feel that such a model, a model such as this——

Mr. Mellin: Why, counsel, where could you get a better one? [272]

(Testimony of Richard Gilman Folsom.)

The Court: Well, I will allow it in evidence, for the purpose of demonstrating in model form the drawing, if it can be so demonstrated that it is correct, a correct model of this drawing.

Mr. Mellin: Would you read back the previous question, Mr. Reporter?

(Record read.)

Mr. Bruce: Now, I move to strike the part of that question referring to a particular deposition.

The Court: It should be deleted from the question. I think you are right about that. I think my ruling covered it, that it was admitted only as a physical model, a physical representation of the drawing, irrespective of its source.

Mr. Mellin: That's right, your Honor. I understand that fully.

Q. Would you answer that, Dr. Folsom?

A. This model is a physical illustration of the drawing in Exhibit N-2.

Q. Of the Italian patent N? A. Yes.

Q. And it correctly illustrates the construction of the pump casing shown in that drawing, does it, Doctor? A. Yes.

Mr. Mellin: I will offer that device in evidence as Plaintiff's next in order. [273]

Mr. Bruce: Just a moment. I may want to object to that.

(Device examined by Mr. Bruce.)

(Testimony of Richard Gilman Folsom.)

Mr. Bruce: If your Honor please, I would like to ask the witness on voir dire a question, one question, as a foundation.

The Court: Very well.

Q. (By Mr. Bruce): Or two questions. Figure 2 on Exhibit N-2 represents what?

A. Figure 2 on N-2 represents the second stage, the actual arrow contacts the impeller of the second stage of the centrifugal pump.

Q. Is there an impeller in this?

A. There is no impeller in this; this is the case alone.

Mr. Mellin: If your Honor please, my question is limited to the pump case. All my questions were so limited. I will stipulate that there is no impellers in that pump casing, nor shafts; no more were my questions directed to that. That is purely the pump casing, to illustrate the Italian patent, Exhibit N.

The Court: Very well.

Mr. Bruce: Well, we object to the admission upon the ground that it is incompetent, irrelevant and immaterial, that it isn't a correct representation of the structure as shown; it is only a part.

The Court: Well, it is only offered as a part, isn't that it?

Mr. Mellin: Just the pump casing, your Honor, because that [274] is what we are here concerned with—I mean, in this instance.

The Court: All right, I will overrule the objection.

(Testimony of Richard Gilman Folsom.)

(Whereupon physical embodiment of Exhibit N, referred to above, was then received in evidence and marked Defendant's Exhibit Y.)

Q. (By Mr. Mellin): Now, Dr. Folsom, would you examine the physical exhibit Y and point out to us the outlet discharge, which is 9 and 4 on Exhibit N-2, and can we mark that? And that is the one you have your hand on that I can't mark, and I will ask you that if the passageway through 9 is the passageway you referred to, which is conventionally indicated to you from the drawing of the Italian patent, Exhibit N, as enlarged in N-2?

A. That is a suitable construction to carry out the information shown on the drawing with regard to that passageway.

Q. Now, as I understand it, that passageway is not actually delineated by lines on the drawing of the Italian patent? A. It is not.

Q. Now, I will call your attention to another fact of the Italian patent, Doctor, with particular reference to Exhibit N-2; I call your attention to the fact that there appears to be an element which I am marking X on Exhibit N-2; what is that element to which I have drawn the lead line from X?

A. One of the stay bolts that pass through the case.

Q. Is that the same type of a stay bolt as is illustrated in the one I have marked XX in Exhibit 2? [275]

(Testimony of Richard Gilman Folsom.)

A. It is the same type of bolt; one passes through the nozzle 9 and the other passes through the intake nozzle, which is not designated on the diagram.

Q. And that is, is that the intake nozzle which I have pointed to, and which I am now labeling 6-A? A. Right.

Q. And does it also pass, or not, through the discharge nozzle 5 of the high-pressure side?

A. It also passes through the discharge nozzle 5.

Q. And that is what is conventionally illustrated by that drawing N-2 to you or not, that the bolt so passes?

A. Yes, it indicates that it does pass.

Q. Now, therefore, would the condition in the formation of the intake passage 6-A and the high-pressure discharge passage 5 be the same or different in physical construction than the passageway 9?

A. May I have that question again?

(Record read.)

A. The conditions for the physical construction would be the same in all passageways referred to.

Q. In other words, as I understand it, then, there would be a boss bisecting the suction passage as well as the high pressure discharge passage in the same manner that it does the passage 9? Am I correct? A. That is correct. [276]

Q. And is that illustrated on the physical exhibit that way, physical exhibit Y?

(Testimony of Richard Gilman Folsom.)

A. That is shown that way.

Q. And the physical casing, or Exhibit Y—
Strike that.

Now, I call your attention to the intake passage on the physical exhibit which corresponds to the passageway 9 on Exhibit N-2, and ask you if that construction of that passageway is the same as this drawing conventionally indicates, this drawing N-2 conventionally indicates to you as an engineer?

A. May I have that question again?

(Record read.)

Mr. Mellin: If that is unclear to you, Doctor, may I strike it? I realize it was garbled, Your Honor. May I strike it? I think I have asked practically the same question.

Q. Now, Doctor, is there anything, conventional or otherwise, in the drawing of the Italian patent as Exhibit N, as shown in N-2 that indicates, discloses or suggests that the water may come from any other point to discharge from 9 except the first stage?

A. I find no such indication on the drawing.

Q. Now, with respect to Exhibit N-2, the Italian patent N, the Italian patent M, and the drawing M-2, is there or is there not any substantial difference between the mode of operation of the two pumping systems shown therein?

A. The mode of operation for pumping in the two systems is the [277] same.

(Testimony of Richard Gilman Folsom.)

Q. Will you point out the differences in the two systems, if any?

A. The differences are involved in the arrangement of the centrifugal pumps, involved in the system. If its—in this one all fluid passes through the first stage, so that it is a series arrangement. Part of the fluid being taken off at this first stage. The remainder of the fluid passing through, returning for its drive pipe, 2—that is in Exhibit N-2. In Exhibit N-2. In Exhibit M-2, the water is separated before it passes into the impellers of the centrifugal pump, instead of after passing through the first stage of the centrifugal pump. The mode of operation, which is an increase in pressure through the action of the centrifugal pump, occurs in both of the centrifugal pumps, the difference is in the arrangement.

Q. And are both plans from an engineering viewpoint feasible or not?

A. They are both feasible.

Q. And the difference is then, as I understand it, it is a difference in question of selection of a design or not?

A. It is a matter of design on the part of the engineer, as to which way he wishes to arrange the pump.

Q. Now, when did you first see this Italian patent, Exhibit N, Doctor?

A. About the first of the year. [278]

Q. And in what manner did it come to your attention?

(Testimony of Richard Gilman Folsom.)

A. It was submitted to me for consideration.

Q. And was it submitted to you with a question for you to give an explanation of its construction and mode of operation? A. Yes.

Q. And was any other information given to you at that time?

A. No other information of any kind was furnished to me at that time. I had no information regarding the application to which the answers to the questions might be placed, who was involved or anything.

Mr. Gray: Just a moment; if the Court please, we object to this on the ground of cross examination of his own witness.

The Court: Well, it is not cross examination. The witness is trying to establish his own impartiality, as it were. I think that there is no objection to that. At least not on the ground that it is cross examination.

Mr. Mellin: If Your Honor please, some of us patent lawyers agree with the Court, that a professional expert should be above the controversy in giving opinions, where they are partly advocates at least, and here we have a State University man, and I just wanted to show that his consideration of it was not under such circumstances as it would be if the answer was indicated to him.

Would you read the previous question, Mr. Reporter?

(Testimony of Richard Gilman Folsom.)

(Record read.) [279]

Q. (By Mr. Mellin): Now, with reference to Exhibit 5, Doctor, illustrating one of the defendant's pumps, is it ever possible to stall the pump because too much water is drawn off of the low pressure?

A. You mean by stalling the pump, getting a condition where it will not pump water?

Q. That's right.

A. In the arrangement shown in Figure 5, no.

Q. And is it or is it not the reason for that, the submerged condition of the inlet eye of the second stage?

A. That is correct. If the inlet eye is submerged in the water, due to the gravitational effect inside the chamber.

Q. I show you a diagram, Dr. Folsom, and ask you if you had seen that before.

A. Yes, I have.

Q. Does that accurately or inaccurately illustrate the flow cycle that you have described in connection with the Italian patent, Exhibit N, as represented by the drawing N-2 on——

Mr. Bruce: Now, Your Honor——

Mr. Mellin: Just let him answer and then you can object.

Mr. Bruce: I want to object before he answers, and I have a right to, Mr. Mellin, I beg your pardon.

Now, this is the same type of examination as we had before. Now, then, they are supplementing his

(Testimony of Richard Gilman Folsom.)

testimony by a fourth physical exhibit. They are still trying to bring in things to [280] corroborate his testimony.

Mr. Mellin: We are not trying to corroborate his testimony, Your Honor, we are trying——

The Court: Well, can't the witness say, "I read this drawing in such and such a way as an engineer and to illustrate the way I read the drawing, I am going to take up different parts of it, and this is the way I find the flow chart, in the flow chart is an amplification of it, as I see it, and it shows the manner in which the flow would be as taught by the drawing"? Can't a man graphically put on paper what his conclusions are as well as telling it in words?

Mr. Bruce: He has already.

The Court: I assume that is what you want?

Mr. Mellin: That is exactly it, Your Honor.

Mr. Bruce: He has already.

The Court: That doesn't necessarily prove that that is what that teaches, if you can show that that is the wrong interpretation of it or that the witness is in error. But he can put his conclusion and opinion as to what that drawing teaches into concrete form, as well as in the form of words, I would think, without violating any sound principles of evidence.

Mr. Mellin: It goes to the weight and not to the admissibility, Your Honor, I believe.

The Court: It is very difficult for the poor judge

(Testimony of Richard Gilman Folsom.)

who doesn't know anything about this. I mean, you have got all these involved diagrams, and I don't know what this diagram means. I can't exclude it on some theoretical, hypothetical basis. I wouldn't know whether my ruling would be correct or not until I hear what it is about.

Mr. Bruce: I will withdraw the objection.

The Court: And if there is something prejudicial about this, why, you can point it out, Mr. Bruce, in whatever form your argument or subsequent presentation of the matter takes.

Mr. Mellin: Well, Your Honor, what I am trying to do is to get it down graphically and fix it so that it will take but one page of the brief instead of twenty.

Would you read the last question, please?

(Record read.)

A. It does accurately illustrate the flow cycle.

Mr. Mellin: I will offer that chart in evidence to illustrate the witness' testimony as defendant's next in order.

(Whereupon chart illustrating flow cycle was received in evidence and marked Defendant's Exhibit Z.)

Q. (By Mr. Mellin): Now, Doctor, what is the part corresponding with the numbers on N-2? What is the part that I have my pencil on?

A. That is part 4.

Q. 4 and 9, 9 of the old patent?

(Testimony of Richard Gilman Folsom.)

A. Well, 9 on the patent number, 4 on the crayon number.

Q. All right. And the intake on Figure 2 of this drawing is [282] labeled 6-A; is this the correct one?

A. That's right.

Q. 6-A, intake, is that correct?

A. That's right.

Q. And 4 is a discharge, is it? A. Right.

Q. And what is this?

A. That is the high pressure discharge, which is indicated as 5.

Q. And the first stage is No. 1, the number?

A. The number is indicated as No. 1.

Q. And the last stage is No. 3?

A. No. 3.

Q. And the intermediate stage is——

A. No. 2.

Q. And the jet construction is—by the way, I was confused with Mr. Jacuzzi on it this morning—the jet pump, is that a proper term for that assembly I have just drawn the line to or not?

A. We use the term “jet pump” as indicating the whole unit.

Q. All right, jet pump—and the suction line as indicated by the numeral?

A. That is the centrifugal pump suction line.

Q. Yes, by 8? A. Right.

(Testimony of Richard Gilman Folsom.)

Q. What is the pipe I have my pencil to at this time? [283]

A. It is referred to as the drive line. That is No. 2 on the other diagram.

Q. Now, I notice that you have arrows pointing, following some sort of a pattern. What are those arrowed lines indicating?

A. The arrows indicate the direction of flow that takes place at the various parts of the pumping system.

Q. And are they substantially in accordance with the arrow system on N-2 or different?

A. They are the same.

Q. And the arrowed lines referred to, I shall mark X on Exhibit N-2.

The Court: Well, what is the advantage of chart Z, Dr. Folsom? Does it show more clearly on the exhibit? Or what have you gained in your explanation by that chart? Can you tell me that in some sort of lay manner?

The Witness: I believe it is brought out in the testimony, the actual shape taken by the discharge passage from the first case to the nozzle is not designated in the patent drawing. This drawing designates an actual physical path that takes place.

The Court: Which you say is taught by the drawing, but—it is taught by the drawing as a whole, but not——

Mr. Mellin: Not in so many lines; that is what he testified.

(Testimony of Richard Gilman Folsom.)

The Court: Not graphically shown.

The Witness: That is correct. This one, if I may, for the Court's benefit—— The lines that come up here, as clearly shown [284] in this sketch, which is almost asymmetrical, shows a flow cycle coming up and shows the passage construction in order to accomplish the flow passage as indicated, as shown by the patent.

The Court: That is the way an engineer would build it?

The Witness: That is correct; this is the way you would put this, or build this in cast iron, or however you were going to make it.

Mr. Mellin: Referring to Exhibit Z.

Q. Now, Doctor, just briefly, I show you an enlarged drawing of the German patent, which is in evidence as Defendant's Exhibit U, and——

Mr. Mellin: And may I offer the enlarged chart as U-2? I will offer it in evidence and the red figures on the chart may be disregarded, Your Honor, because they were from another witness.

(Enlargement referred to above was thereupon received in evidence and marked Defendant's Exhibit U-2.)

Q. (By Mr. Mellin): And, Doctor, would you very briefly approach the chart U-2, with the Court's permission, and tell us the flow cycle or the mode of operation of the pumping system there disclosed?

A. This describes another combination centrifugal

(Testimony of Richard Gilman Folsom)

gal jet pump, pumping system, in which the drive fluid for driving the jet goes downward through the pipe designated as P, supplying pressure water to operate the injector, the intake from the [285] well is through this section, the designation of which, I believe, is a lower case "r."

Q. Which I marked r.

A. The two fluids then combining then being pumped up through the suction pipe to the centrifugal pump.

Q. The suction pipe?

A. The suction pipe S to the centrifugal pump, where it then enters a pump which contains two stages that are being operated in parallel. There is a division of water at the suction intake such that part of it goes into an impeller, which has a larger diameter, and would then create a higher pressure, which passes out through the section I, into a pressure tank.

Q. V?

A. Correct. The other portion of the water that is divided at the pump suction intake passes through the lower pressure stage into the casing H, where it is then returned to the pipe P to drive the jet. The water taken in through the part R is then equal in quantity to the water discharged to the tank V.

Q. Is that V what we term a pressure tank?

A. Yes.

Q. And I guess that is W (indicating)?

(Testimony of Richard Gilman Folsom)

A. W is a pressure switch for automatically controlling the motor for operation of the unit.

Q. So that when the pressure in the tank drops, the system commences automatically operating?

A. Right.

Q. Now, as I understood your testimony, Doctor, here we have the reverse of the situation; we have a low pressure going to the jet and high pressure to the tank, is that correct? A. That's right.

Q. And why would there be two such systems, one with low pressure to the jet, and a high pressure to the tank, and in others they make them with high pressure to the jet and low pressure to the tank? Would you explain that very briefly?

A. The selection of the arrangement of the different elements of the centrifugal and the jet pump will depend upon the various characteristics of the particular installation. The desired pressure for the water at output, the elevation of water in the well from which you are pumping, the sizes of the pipes, the centrifugal pump characteristics and the jet pump characteristics.

Q. In other words, an engineer makes his selection to suit the conditions he meets in the field?

A. Right.

Q. Thank you, Doctor.

Now, Doctor, I show you an enlarged drawing of the British patent in evidence, Defendant's Exhibit V, and very briefly, will you tell us, please, what the cycle of operation of that device is?

(Testimony of Richard Gilman Folsom)

Mr. Mellin: And the chart that he is testifying from, I [287] will offer in evidence as V-1.

(Chart referred to above, Figure 1, was then received in evidence and marked Defendant's Exhibit V-1.)

Mr. Mellin: Would you read the question, Mr. Reporter?

(Record read.)

A. This is V-1.

Q. V-1?

A. As marked.

Mr. Mellin: May the record show it was V-1? I misquoted.

The Court: Very well.

A. This is again a combination centrifugal pump, jet pump system; in this case the centrifugal pump's stages have been separated so that they become two separate centrifugal pumps. [288]

Q. Are they driven by the same medium so that they will simultaneously operate?

A. They are both directly connected to the electric motor shown at M.

Q. Go ahead, Doctor. What is the element marked 2 on the drawing?

A. 2 is a tank which is connected to the discharge of the first pump and forms the suction to the second pump, from which the suction is taken for this second pump.

(Testimony of Richard Gilman Folsom)

Q. As I understand it, the discharge from the first pump P discharges into the chamber or tank 2 and the suction of the second pump, which is 1-S, derives its water from the chamber or tank 2, is that correct?

A. That is right.

Q. So that you have a fluid circuit between the discharge of what you would call—would you call P a low pressure pump?

A. It is the first stage, or the discharge of P is less than the discharge pressure of 2. Therefore, in that sense it would be a low-pressure pump in this system.

Q. So, therefore, you take the discharge from the low-pressure pump into the chamber 2 and the suction of the high-pressure pump connecting with the chamber 2. Go ahead.

A. The discharge from the high-pressure pump is then fed back through the line 10, which provides the pressure water for operating the injector 9, which mixes with the suction water [289] taken from the well through the suction pipe 12. After joining the two go through the discharge or the diffuser of the injector pump or jet pump; it then passes upward through pipe 4, which is the intake pipe passing to the first stage or the centrifugal pump P. The water then discharges from P into the tank 2, where we find it may be recirculated, or it may leave the tank also as through the suction 1 into the high-stage pump.

(Testimony of Richard Gilman Folsom)

Q. And where does the discharge from the high-stage pump go to?

A. The discharge from the high-stage pump feeds back to drive the jet through pipe 10.

Q. The pipe 5 is for what purpose?

A. Pipe 5 is to take off the quantity of water that is pumped by the system; in other words, the water that comes in through the pipe will then pass outward through the pipe 5.

Q. Then as I understand the system, Doctor, we have two pumps, a high-pressure pump and a low-pressure pump in the system, is that correct?

A. That is, you have two centrifugal pumps which we can designate as a low-pressure and a high-pressure centrifugal pump.

Q. The discharge of one and the suction of the other is connected to a chamber?

A. Connected to a chamber, 2.

Q. So that any water pumped by the low-pressure pump P can flow into the suction of the high-pressure pump 1?

A. I didn't quite understand that. [290]

Q. So that the water discharged by the pump P into the chamber 2 may seek by gravity to flow down through the pipe S into the suction of the high-pressure pump 1?

A. As long as the pump P-1 is pumping water, having some water in the tank, you have a gravity feed to keep the suction of the pump 1 submerged so that water is fed to 1 for continuous operation of the circuit.

(Testimony of Richard Gilman Folsom)

Q. Is that method of feeding the intake of the second pump from a fundamental principle substantially the same or different from that of the Berkeley Defendant's pump 5 so far as the feeding of the water from the first stage to the second stage is concerned?

A. They are the same in that the water leaving the first stage goes to a tank, which then keeps the suction of the second stage submerged through the action of gravity.

Mr. Mellin: You may cross-examine.

The Court: Mr. Mellin, do these foreign patents have the same longevity as patents under our system?

Mr. Mellin: They are all different, your Honor. For example, in some of the countries, like France and Mexico, they do not even make a search for novelty, and they have all different lengths of duration.

The Court: You have here an Italian, a German, and an English patent.

Mr. Mellin: That is right. [291]

The Court: How do they compare as far as their life is concerned?

Mr. Mellin: It all depends on whether you pay taxes for them. There is a yearly tax on them, and if you do not pay it, the patents are forfeited. Some of them have different lengths of life. In Argentina, depending on the fee you pay, you can get it for a longer or shorter period.

The Court: But in these countries——

(Testimony of Richard Gilman Folsom)

Mr. Mellin: I do not know the exact length of life of an Italian patent. I think it is 15 years if you pay the taxes every year. If you do not pay the taxes every year it is forfeited.

The Court: That has no bearing on the construction of American patents.

Mr. Mellin: None, whatsoever. I think it is like any other publication for that purpose: Is it new or is it old? Whether it is patented or not is unimportant. You may cross-examine.

Cross-Examination

By Mr. Bruce:

Q. Dr. Folsom, when Mr. Mellin was asking you concerning whether he had talked with you before you had made up your mind as to the meaning of the Italian patent, as illustrated in Drawing N-2, you wanted to convey to us that you were entirely unprejudiced in this matter, didn't you?

A. Right. I reached a decision by myself without any reference [292] to anything else.

Q. You are being paid for your testimony today, aren't you?

A. That is right.

Q. Afterwards you had lengthy discussions with Mr. Mellin and his associates, didn't you?

A. Only after I had presented a complete analysis of the questions that were presented to me, and any analysis that has been given in that sense is exactly as I presented on the original reply.

(Testimony of Richard Gilman Folsom)

Q. But you did have conferences?

A. That is right.

The Court: Have you ever testified before, Doctor, in any of these patent cases?

A. This is the first time, sir.

Q. This is your first experience?

A. That is right. I may add maybe it is my last.

The Court: It depends on whether the treatment you get is rough or gentle.

Q. (By Mr. Bruce): Calling your attention to Exhibit S—and you have a copy of it in your hand, have you?

A. May I ask the author of the patent?

Q. One of the Jacuzzi patents, of May, 1930. Have you ever seen this particular pump in operation?

A. In the laboratory, yes. Wait a minute. I beg your pardon. I have not seen the Jacuzzi pump in operation. [293]

Q. Well, have you seen this particular structure in operation?

A. This structure in this type of pump, yes.

Q. Identical?

A. The functional parts—

Q. Just answer my question, Doctor.

A. The identical takes in a lot of things in which a pump in the laboratory is installed. I am not certain of the actual construction of the jet, the details of it, nor the exhaust valves, nor anything else. In basic principle, in the mode of operation, yes. In all the details, no.

(Testimony of Richard Gilman Folsom)

Q. Did you have a discharge from the suction pipe as shown in the drawing?

A. Discharge out pipe 28?

Q. Yes.

A. One similar to that, yes.

Q. Discharging to atmosphere?

A. That is right.

Q. And the discharge from the high-pressure side of the pump or from the discharge line from the pump which feeds the jet, did that go to anything, or did that pipe 29 lead to a tank or something in the one that you saw?

A. In the laboratory we set these up for various conditions and various situations, which may not correspond to the field condition. This particular pump, I believe, discharged directly into a weighing tank. [294]

Q. Have you ever seen the water system of Exhibit 5 in operation?

A. I have seen Berkeley pumps in operation. Whether I have seen this exact system or not I am unable to say.

Q. Did you perform any experiments on the pump system that you had at the laboratory, such as shown in the Jacuzzi patent?

A. Which patent are you talking about?

Q. I am talking about Exhibit S, now, Patent No. 1,758,400.

A. Again your question sir?

(Question read.)

(Testimony of Richard Gilman Folsom)

A. I did not perform the experiments personally. They were performed by graduate students.

Q. Well, did you supervise those experiments?

A. That is right.

Q. You knew what was done, then. When were these experiments performed?

A. They were before the war.

Q. They were, you say, in the laboratory of the University of California?

A. That is right.

Q. Did you ever say that you had seen the structure of Exhibit 3 in operation? That is the one on the board, patent 285.

A. I have never seen this pump in operation.

Q. Did you ever see the pump system of Exhibit 4 in operation? A. No, sir, I have not. [295]

Q. What type of experiments did you perform, going back to the Jacuzzi patent, Exhibit S? What type of experiments did you perform?

Mr. Mellin: He did not perform any. He so testified. He supervised.

Q. (By Mr. Bruce): What experiments were performed under your supervision, Doctor?

A. Experiments that have been performed in our laboratory over a period of time have involved the operating characteristics of the jet pump along as a unit, the operation of the centrifugal pump as a unit, and then from those combined curves, being able to take the characteristics of the centrifugal pump and the jet pump, and developing methods so

(Testimony of Richard Gilman Folsom)

that we could predict the operating characteristics of the combined jet centrifugal pump system at any conditions of operation that might be satisfied. So that we had special installations where we would test the centrifugal. We would then test this portion, then test this portion as an independent unit. Then we would calculate for a given water level in the well, for a given pipe-line system what the overall performance of the unit should be. And then we have set up in the laboratory several special circuits of that kind to check our calculations and to see that we understood the operation of the unit correctly. And those experiments have panned out and we have been able to do that as closely as we can calculate the friction loss in an ordinary [296] pipe.

Q. In a pump of your experiment corresponding to Exhibit S, the Jacuzzi pump Exhibit S shown in the patent, you will notice that there is a valve 27 on the low-pressure discharge side.

A. Right.

Q. On the suction side of the pump.

A. Correct.

Q. Or on the suction line. What sort of valve did you use in your experiments—in the experiments under your supervision—and if I say your experiments you will understand——

A. May we assume that is what we are referring to?

Q. Yes.?

A. This was a manually-operated valve. Whether it was a needle valve, a gate valve, or other type, I

(Testimony of Richard Gilman Folsom)

do not know.

Q. In those experiments under your supervision with that structure of Exhibit 3 did the pump, when the discharge was taken from the suction line, lose prime?

A. You are asking about conditions of ten years ago, which is difficult to remember. We have operated these over all kinds of conditions. It is obvious that as this valve was opened too much, and if there is too much discharge which comes out of the suction line, you may not be able to keep the jet in operation. For this experiment I can't answer. It is too long ago.

Q. Referring to Exhibit A, concerning which you testified on [297] your direct examination, of water entering at the suction of the pump——

A. That is the suction of the centrifugal pump?

Q. Yes—is raised to the desired limit, is raised up through the stages to the desired limit of pressure desired, is it not?

A. The water at the inlet of this unit then passes through a series of centrifugal pump stages. The number of stages may be set by the discharge pressure or by the pressure required to operate the jets satisfactorily. The requirements of the jet depend upon the water level with respect to the location of the centrifugal pump and the relative rates of flow involved.

Q. But it reaches the desired pressure at the highest stage?

A. If the desired pressure corresponds to that

(Testimony of Richard Gilman Folsom)

required to operate the jet, yes, it reaches it at the outlet of the last stage.

Q. The water issuing from the pressure end of the pump, that is, through the discharge to the tank——

A. To the tank.

Q. And also the jet—that pressure is divided into two parts, is it not?

A. I am sorry, sir. You do not divide the pressure into two parts. You divide the quantity of the rate of flow. The pressure is the same at this point for the water going this way and the water going this way (indicating). [298]

Q. One of the parts goes to the service or to the pressure tank as shown there, the other part goes downward through the pressure pipe to feed the jet, is that correct?

A. Part of the water in this system goes to the pressure tank, part returns to drive the jet.

Q. That is right. I have no more questions of the doctor.

Mr. Mellin: No questions from our side of the case, and with the permission of the court and the other side, may Dr. Folsom be excused?

The Court: Very well. You may be excused. We will take a recess.

(Recess.) [299]

FRED A. CARPENTER

recalled as a witness on behalf of defendant; previously sworn

Direct Examination
(resumed)

Mr. Mellin: At the close of yesterday's session, your Honor, there was a demand for actual drawings of the pumps that were supplied in connection with Exhibit K. May I have Exhibit K, please?

(Exhibit handed to counsel by the clerk.)

Q. I hand you Exhibit K, Mr. Carpenter, and ask you if anywhere in there, on those papers, there is designated any drawings which would identify the pump that was sold at that time (handing to witness)?

A. Yes, on the invoice copy, which is our record, there is a pump drawing L-112 and also M-319.

Q. Yes. Just the two?

A. Just the two is all that is mentioned on the invoice.

The Court: What was the date of that?

The Witness: The date of this invoice is July 34, 1939.

Q. (By Mr. Mellin): I hand you what appears to be two original drawings, one marked L-112 and the other marked M-319, for 1x7½ two-stage pumps for engine or motor mounting, Berkeley Pump Company (handing to witness), and I ask you if those are the two drawings referred to by the invoice?

(Testimony of Fred A. Carpenter.)

A. Yes, those are the two drawings referred to on the invoice copy. [300]

Q. And referring to the drawing L-112, would you tell us whether or not it is, and identify that those drawings are of the centrifugal pump portion only? Is that correct? A. That is correct.

Q. And I ask you whether or not that L-112 corresponds in construction precisely with the centrifugal pump illustrated in Exhibit J?

A. It corresponds precisely.

Q. Does it have a high-pressure opening which is illustrated at A in Exhibit J, or not?

A. Yes, it has.

Q. Does it have an opening for the suction pipe to the jet pump, or not?

A. You mean the pressure pipe?

Q. The pressure pipe to the jet pump, or not.

A. Yes, it has an opening for the pressure pipe.

Q. And an opening for the suction pipe into the suction of the intake? A. Yes, it has.

Q. Are the impellers arranged in the same fashion as shown in Exhibit J, or differently?

A. They are arranged in the same fashion.

Q. In other words, the construction is identical?

A. The construction is identical.

Q. As a matter of fact, Exhibit J was made from that drawing, [301] isn't that a fact?

A. That is a fact.

Mr. Bruce: That is, the pump portion of it?

Mr. Mellin: The pump portion of it, yes.

(Testimony of Fred A. Carpenter.)

I will offer the two drawings in evidence as Defendant's next in order.

Mr. Bruce: What number is that, Mr. Clerk?

Mr. Mellin: I will offer first the drawing L-112, dated 5/26/39.

The Clerk: Exhibit AA.

(Whereupon diagram No. L-112, dated 5/26/39, referred to above, was received in evidence and marked Defendant's Exhibit AA.)

Mr. Mellin: And the drawing M-319, dated 7/17/39.

The Clerk: Exhibit AB.

(Drawing M-319, dated 7/17/39, was received in evidence and marked Defendant's Exhibit AB.)

Q. (By Mr. Mellin): Now, with respect to the construction of the pump shown in those two drawings, Mr. Carpenter, I hand you three additional drawings which are shop drawing, dated 5/24/39, marked L-109 and L-110, and L-111. I hand you those three drawings and ask you if those are the actual construction drawings of the parts of the pump shown on the drawing 112, which is L-112, which is AA in evidence (handing to witness)?

A. I would like to correct you; the drawing is L-112. [302]

Q. I beg your pardon.

A. And these are the detail drawings that go to make up the assembly L-112.

(Testimony of Fred A. Carpenter.)

Q. The drawings you are referring to now are the ones actually used in the shop to make up the pump? A. Yes.

Mr. Mellin: I offer those as one exhibit, next in order, your Honor.

The Clerk: Exhibit AC.

(Drawings labeled L-109, L-110, and L-111 were then received in evidence and marked Defendant's Exhibit AC.)

Q. (By Mr. Mellin): Now, Mr. Carpenter, is this for a particular size of this pump?

A. Yes, this is for a particular size.

Q. Had you made that same pump in different sizes prior to this 1939 date, or not?

A. If we made—We made one a size larger prior to this date, and I believe one afterwards that was smaller.

Q. And how much prior was the larger made, if you can recall?

A. It was a matter of months, I believe.

Q. I hand you, Mr. Carpenter, a series of documents comprising first a page with a number of calculations on it, apparently; a second letter, what purports to be a letter of April 20, 1939, from the Powers Home Equipment & Service Corporation, addressed to the Berkeley Pump Corporation; the next one appears [303] to be a carbon copy of a letter directed by the Berkeley Pump Corporation to the Powers Home Equipment & Service Corpora-

(Testimony of Fred A. Carpenter.)

tion, dated April 22, 1939; a telegram or what appears to be a telegram dated May 3, 1939, directed to the Berkeley Pump Corporation by the said Powers Home Equipment & Service Corporation; the next document is a letter dated May 3, 1939, from that Powers Home Equipment & Service Corporation to Berkeley Pump; the next appears to be a carbon copy of a letter of May 4, 1939, directed by the Berkeley Pump to Powers Home Equipment & Service Corporation; the next appears to be in the form of an invoice, but in pencil, written in handwriting, with the date on it of 5/5/39; the next appears to be a sketch in pencil of some sort labeled, "Berkeley Pump Corporation, by F.—" something—"C 5/11/39"; the next is a letter of May 11, 1939, directed to Powers Home Equipment & Service Corporation by the Berkeley Pump Corporation; the next appears to be a carbon copy of a letter to the Powers Equipment & Service Corporation, dated May 12, 1939, by the Berkeley Pump Corporation; and the next appears to be a carbon copy of an invoice of the Berkeley Pump Corporation directed to the Powers Home Equipment & Service Corporation, and dated—well, it says, "Entry date, 5/5/39," and "Shipping date 5/11/39," and that is in typing, and then that is changed by pencil, and there also are some pencil notes, Now, would you tell us if all those papers relate to particular [304] transactions, or to a particular transaction, or not (handing to witness)?

(Testimony of Fred A. Carpenter.)

Mr. Gray: If the Court please, I don't know exactly what he has there, because we didn't want to take time to read all that correspondence. But it appears evident that it is correspondence between the Berkeley Pump Company and some third person, and I am going to object to it on the ground it is incompetent, irrelevant and immaterial, and self-serving, more for the interest of saving time than anything else, because we will have to read it before it is admitted, and it may be that there is no harm in it; but it will probably take us 20 or 30 minutes to read it.

The Court: Well, you want to show plans for a pump similar to the one that you have just described that was larger, is that it?

Mr. Mellin: No.

The Court: That was made at the same time?

Mr. Mellin: No, I am showing another sale, another public use and sale of the same pump as shown in Exhibit J.

The Court: Well, why don't you just offer the invoice and have the witness testify that he got the order? You are just putting this in for the purpose of showing it is authentic?

Mr. Mellin: It is proof, your Honor.

The Court: Well, in the absence of any contrary showing, [305] you can have the correspondence marked for identification and just make the offer so counsel don't have to read all that and see whether there might be something in it.

(Testimony of Fred A. Carpenter.)

Mr. Mellin: Well, it would save time putting it in the way it is; particularly as to the authenticity, because in one of the letters is a description of the system, which is to be installed, on which there is a sketch. Otherwise, I would have the witness do the same thing that we did yesterday. The invoice has this drawing of the pump, there is a sketch on there of the system, there is a letter in there describing the requirements and the actual connection of the pipes to the pumps.

Mr. Gray: Doesn't the drawing accomplish all that?

Mr. Mellin: No, this drawing doesn't.

Q. Does the other one, Mr. Carpenter?

A. No, the drawing doesn't show the pipe arrangement.

Mr. Mellin: We have to take the transaction as a whole, your Honor, and this came out of the files of the Berkeley Pump in the regular fashion, and it would be ordinarily, if there were a real issue, unless they want to stipulate that pumps of the character shown in Exhibit A, and that systems were in public use more than one year prior to, at least, May 31, 1941—I can dispense with all of it then. If they are putting me to the technical proof, I have got to continue, your Honor. I don't think there is any question but that they were so used. But public use has to be proved right up to the hilt, your Honor, under the rule.

Mr. Gray: I make this suggestion, that if coun-

(Testimony of Fred A. Carpenter.)

sel is insisting on putting it in, that you mark it for identification, and then sometime during the trial we will look it over and see what is in it. But it certainly wouldn't be good practice for us to permit it to go in without knowing what is in it.

The Court: Well, we will mark it in identification and then you may continue with the transaction, put in the plans, and then counsel can examine it later.

Mr. Mellin: All right. May I have the bundle marked Defendant's Exhibit AD For Identification?

The Clerk: Exhibit AD.

(Bundle of correspondence referred to was marked Defendant's Exhibit AD for Identification.)

Q. (By Mr. Mellin): Now, Mr. Carpenter——

Mr. Mellin: I wanted to tell the court that I have been trying nothing but patent cases for fifteen years, and this is the first time in my experience that a court ever told me to slow down. It is always hurry up.

The Court: Well, I sort of got the impression this morning that you were propounding your questions fast because of something that I may have said, indicating a desire to expedite it. [307]

Mr. Mellin: No, your Honor, it is just from the force of habit of trying these cases and having the courts hurry us up, in patent cases.

(Testimony of Fred A. Carpenter.)

Q. (By Mr. Mellin): I hand you Exhibit AD For Identification and ask you where those papers came from (handing to witness).

A. These papers came from the files of the Berkeley Pump Company.

Q. And, if you know, were those letters, the original letters in there, received in the regular course of mail on or about the dates they bear?

A. Yes, they have.

Q. And were the originals of the letters which appear to be carbon copies of letters duly mailed to the addressee on about the dates that they bear?

A. Yes, they were.

Q. Now, I call your attention to an invoice. Will you tell us, is that an invoice of the Berkeley Pump Company?

A. That is an invoice of what we called then the Berkeley Pump Corporation.

Q. All right. That is one of the defendants here? Mr. Bruce: No.

A. Yes, one of the defendants.

Q. (By Mr. Mellin): Well, you were connected with that corporation?

Mr. Bruce: The Berkeley Pump Corporation isn't a defendant. [308]

Mr. Mellin: Well, you have got so many defendants, I can't even tell.

Q. But it is all right, it is the Berkeley Pump Corporation it is a predecessor of the present defendant, and would you tell us, please, is that in-

(Testimony of Fred A. Carpenter.)

voice for a pump of a particular design and character?

A. Yes, this invoice is our record, one of our records, of a particular pump made for a particular purpose.

Q. And that invoice was rendered on or about the date it bears, the original of it?

A. Yes, sir.

Q. Does it call for, or does it designate, the pump by drawing numbers or some other identification?

A. Yes, it has an assembly drawing number C-107.

Mr Mellin: Do you have any objection to the blueprint rather than the original, Mr. Bruce?

The Witness: Pardon me, the original is here.

Mr. Mellen: I know.

Mr. Bruce: No, I don't.

Q. (By Mr. Mellin): I show you a drawing which is dated 5/5/39, numbered L-107; does that illustrate the pump which is designated on that invoice (handing to witness)?

A. Yes, it does.

Q. And is that pump any different in construction than the pump, as far as the centrifugal characteristics are concerned, [309] than that pump which is shown in Exhibit J?

A. No difference.

Mr. Mellin: I will offer that drawing in evidence as Defendant's next in order.

(Testimony of Fred A. Carpenter.)

The Clerk: Exhibit AE.

(Drawing No. L-107, dated 5/5/39 received in evidence and marked Defendant's Exhibit AE.)

Q. (By Mr. Mellin): Now, Mr. Carpenter, the exhibit for identification which you have in your hand, AD For Identification, does that include a sketch or a diagram of a pumping system?

A. There is included with the papers a sketch dated 5/11/39. It doesn't show the entire pump, but it does show the pipes going down to the jet and it shows a discharge coming out of a tee and other discharge coming out from the side of the pump.

Q. Can you tell us anything about the sketch, who made it?

A. The sketch was made by myself.

Q. When was it made? A. 5/1/39.

Q. And is that the sketch of the system which you sold under the invoice which you just referred to? A. Yes, sir.

Q. And is there a description of that system in one of the letters accompanying in Exhibit AD For Identification?

A. There is at least a partial description.

Q. In what letter, please, so we may identify it?

A. The letter of May 4, 1939, describes the pump briefly and it describes the conditions under which it is to work.

(Testimony of Fred A. Carpenter.)

Q. And does that provide that there is to be a high-pressure discharge, or not?

A. Yes, that has a paragraph covering a method of discharge from the pump.

Q. Now, from that description in it and the sketch, would you say or would you not say that the system there is the same system as shown in Exhibit I, with the exception that there is a low-pressure discharge from the suction line that I will indicate in dotted lines in Exhibit I, and label X (marking,) or not. [311]

Mr. Bruce: Did you include in your question the red?

Mr. Mellin: No. May the record show that the part on Exhibit I marked in red may be totally disregarded for the purpose of this question.

Q. Mr. Carpenter, does it include a low pressure discharge from the suction?

A. It includes a low pressure discharge.

Q. From the suction?

A. From the suction.

Q. The high pressure discharge from the highest stage of the pump?

A. Yes, from the highest stage of the pump.

Q. Thank you, Mr. Carpenter. Now, Mr. Carpenter, with respect to water pressure systems such as we have been discussing in general, have you ever seen a water pressure system, that is, of the jet pipe, having a jet at the bottom and a centrifugal pump of one or more stages at the top in a pressure

(Testimony of Fred A. Carpenter.)

tank in which the pressure in this system is equalized promptly, and immediately that water was drawn off of any part of the system?

A. No, I never did.

Q. Is that an inherent characteristic of such systems?

A. That is referring to the jet pipe pressure systems?

Q. The jet pipe pressure systems.

A. In jet pipe pressure systems it is necessary that water equalize when they stop because it must be filled with water [312] clear down to the foot valve.

Q. So that in all systems the whole system is full of water, isn't it? A. Yes.

Q. And when you draw water from the system, if there is a storage tank, it equalizes back into the pump? A. Yes.

Q. And when the pressure drops below the setting of the automatic switch, the pump commences to operate? A. That is right.

Q. That is an inherent condition in pressure systems for how long, to your knowledge?

A. All centrifugal systems for as long as I can remember. To make a distinction, plunger pumps that do not need to be primed——

Q. I am talking about jet pipes, you understand, centrifugal pumps.

A. Jet pipe pumps have always equalized pressure.

(Testimony of Fred A. Carpenter.)

Q. How long have you known of such systems?

A. Since 1925.

Mr. Mellin: Cross-examine.

Cross-Examination

By Mr. Bruce:

Q. Mr. Carpenter, I would like to show you the circular exhibits which are in evidence. I will show you the circular exhibits, Defendant's Exhibit F, Exhibit 12, 13, 14, [313] 15, 16, 17 and 18, and ask you if those are publications of the Berkeley Pump Company or the partnership defendant.

Mr. Mellin: We already stipulated to that, Your Honor, and they are already in evidence. I see no point in encumbering the record.

The Court: That is admitted.

Mr. Bruce: That is stipulated.

Q. Did you assist in the compilation of those circulars and documents which you hold in your hand? A. Yes, I did.

Q. They portray the various products of your company, including those of Exhibits 5 through 9?

A. I believe they do, yes.

Q. Can you tell me the earliest date? Which exhibit was the first published? A. Of these?

Q. Yes, of those. Which was the first published?

A. I believe this one we call Bulletin 500.

Q. When was Bulletin 500 published, if you know?

A. I don't recall exactly, but I know it was a

(Testimony of Fred A. Carpenter.)

pre-war piece of literature, so it must have been about 1940.

Q. Of the other circulars, excluding the installation instructions, which was the first one published? Was it Bulletin 501, Exhibit 12?

A. I am quite sure that is correct. [314]

Q. And when was that published?

A. I think it was 1944.

Q. 1944? A. Yes.

Q. Is that the first publication that you have illustrating the pump system shown in Exhibit 5?

A. It depends upon what you mean by publication. We have blueprints of a pump like that a little earlier.

Q. I mean publications which provided for a circular among your customers and distributors.

A. That is right. This is the first one.

Q. And do you fix that at 1944? A. 1944.

Q. Mr. Carpenter, you are the Mr. Carpenter that is the patentee that was cited as part of the prior art, 2,280,626? A. Yes, sir.

Q. That is a water system in which a discharge is taken from a suction pipe, is it not?

A. I don't understand you.

Mr. Mellin: If Your Honor please, if I may try to shorten this, this is rather outside the scope of the direct examination. Here is another type of pump manufactured by Berkeley Pump known as the turbine pump, which has nothing to do with the subject under inquiry here.

Mr. Bruce: It was pleaded. [315]

(Testimony of Fred A. Carpenter.)

Mr. Mellin: It was pleaded, but we haven't offered it in evidence.

Mr. Bruce: I will connect it up, Your Honor.

The Court: Very well.

Mr. Mellin: May I have the objection on the ground it is immaterial? It was pleaded, but not offered.

Mr. Bruce: I withdraw that question.

Q. That is a pump system in which the pipe leads to the impeller stage of the pump system, does it not?

A. You say a pipe leads to the impeller stage of the pump?

Q. Yes. You have an impeller stage in the pump, haven't you? A. Yes.

Q. And a pipe leads to that, doesn't it?

A. Yes, a discharge pipe leading to that impeller case.

Q. Now, then, there is a discharge below the impeller stage, is there not?

A. Yes, that is a dual discharge pump.

Q. It is a dual discharge pump, not from the casing, however, is it not?

A. Yes, both come from the casing.

Q. Does it come from the impeller stage, from that part of the casing which develops the pressure for the pressure tank?

A. There is one discharge leading from what we call a booster case and a discharge of lower pressure that comes from what we just call the case. [316]

(Testimony of Fred A. Carpenter.)

Q. There is a pressure system connected with it, isn't there? A. Yes, there is a pressure tank.

Q. And there is a check valve in the discharge line to the pressure tank, isn't there?

A. Yes, there is.

Q. And that is the way such a pump is sold, isn't it? A. That is right.

Q. Was the pump system shown in Exhibit K designed by you?

A. I lost track of Exhibit K. May I see a copy of it?

The Court: That was that 1939 sale, the first one that you testified to.

Mr. Mellin: That is the pump in Exhibit I and J.

The Witness: Will you repeat the question, please?

(Question read.)

A. It was designed partly by me and partly by Ralph Rhode.

Q. (By Mr. Mellin): That is not the pump embodied in the Rhode patent, is it? A. No.

Q. (By Mr. Bruce): Did you know Mr. Rachele Jacuzzi? A. Yes, I knew Rachele Jacuzzi.

Q. In what connection? You worked for him, didn't you? A. I worked for him a short time.

Q. Your work was connected with pumps, was it not?

A. To a limited degree. I worked on helicopters, turbine pumps, and a little bit on jet pumps, very little. [317]

(Testimony of Fred A. Carpenter.)

Q. You stated yesterday in your testimony, as I understand it, that you considered the features of the pump sketch shown in Exhibit K as unique. Do you recall stating that?

A. Yes, it was a unique installation.

Q. A unique installation? A. Yes.

Q. What did you consider unique about it?

A. That the pump was to deliver water to a low level open tank and to a high level tank. The well was of very poor capacity. The idea was to pump into the low level tank until it was full, and then by the mere opening of a valve, the water would be withdrawn through the same suction, the same pipe that delivered the water into the low level tank would then become a suction pipe, and the water would go out through the pump into the high level tank.

Q. And that is what you considered unique?

A. Yes.

Q. When did you first offer to the public the pump systems illustrated in Exhibit 5?

A. About the middle of 1940.

Q. About the middle of when?

A. Publication, you say?

Q. No. When did you first offer to the public the pump system? A. Early in 1942.

Q. 1942, about the middle of 1942? [318]

A. That is right, I think it was the early part of 1942. I am not certain.

Q. When did you offer the pump system illustrated in Figure 6 to the public?

(Testimony of Fred A. Carpenter.)

A. If you are referring to that exact construction, that was 1944. If you are merely referring to a pump of the same flow cycle——

Q. I am asking you specifically with respect to Exhibit 6, the same pump system shown there.

A. The same pump system?

Q. Yes. A. 1942.

Q. When did you first offer the pump system of Exhibit 7 to the public?

A. That being a three-stage pump, I know it was not offered until 1944.

Q. When did you offer the pump system of Exhibit 8 to the public?

A. I am not certain as to that without looking up records whether it was 1942 or 1944.

Q. When did you offer the pump system of Exhibit 9?

A. I am not sure on that one either, whether in 1942 or 1944.

Q. In other words, there was no offering to the public prior to 1942? A. Not of that type.

Q. When did you first start to manufacture and offer to the public multi-stage pumps?

A. In the early part of 1937. You are referring to my company. You are not referring to me personally, but to my company, Berkeley Pump Company.

Q. What was the date?

A. 1937 was the first that the Berkeley Pump Company made.

(Testimony of Fred A. Carpenter.)

Q. These multi-stage pumps as such were old when you started in business, weren't they?

A. What is that?

Q. Multi-stage pumps were old when you started in business? A. Oh, yes.

Q. Does the turbine pump of your patent that you were just referring to, 2,280,626, which was cited in the pleading—what is the advantage of that pump over the pump system shown in Exhibit 5?

A. It pumps a much larger quantity of water at zero pressure at the surface or open discharge.

Q. Do you consider that a more advantageous pump in the matter of delivery than the pump of Exhibit 8?

A. This is a deep well pump and Exhibit 8 shows a shallow well pump. We try to match pumps according to the conditions that we find in the field.

Q. You readily convert the pump, the water system of Exhibit 8 to deep well pumping, don't you?

A. Yes, that is true. [320]

Q. In other words, you sell it as a pump which can be readily converted? A. That is right.

Q. In selling the injector unit, the injector assembly, you sell that portion, too, do you not?

A. That is right.

Q. And you give instructions as to how it may be installed? A. Yes, sir.

Q. So that a person buying the pump system of Exhibit 8 could readily convert it into a deep well pumping system? A. That is right.

(Testimony of Fred A. Carpenter.)

Q. By the way, how do you ship the pump system of Exhibit 8? A. How do we ship them?

Q. Yes, how do you ship them?

A. In a crate by a regular carrier.

Q. Is the suction pipe attached or separate?

A. Oh, it is not attached, no.

Q. When you sell the deep well pump system, pump system of Exhibit 5, you ship it in a crate with the injector assembly separate, don't you?

A. That is right.

Q. In other words, these pumps are very readily convertible from shallow well to deep well pumping?

A. That is right. [321]

Q. And you advocate in your literature that a person can really save the price of one pump by buying one pump since it is so readily convertible.

A. I think I understand your question, but I would like to have it read.

(Question read.)

The Court: You mean save the price of two pumps.

Q. (By Mr. Bruce): Yes, save the price of two pumps.

A. It is not exactly that, but we do mention the fact that if the water is shallow level and they buy our shallow two-stage pump, they can later buy the deep well jet assembly for a nominal sum and they will have a deep well system without throwing the whole thing out.

(Testimony of Fred A. Carpenter.)

Q. You advocate that in your sales literature?

A. Yes.

Q. And in your distribution of your pumps, do you not?

A. We have done that for years—since 1937.

Q. When did you first produce the turbine pump in your patent that we have discussed?

A. Without looking up the record, I would only guess. We started late in 1939 or early 1940.

Q. And your first distribution of pumps and pump systems, or first sale of the exhibit 5 through 8, was subsequent to early 1942, or starting with early 1942?

A. That is right. [322]

Q. In Exhibit 5 in this system you take the pressure discharge from the low pressure side of the pump unit, do you not?

A. That is the way it is arranged, yes.

Q. This is an advantage, isn't it, since you do not have to raise the water required by the consumer up to the pressure required by the jet?

A. That can be considered an advantage in some cases, yes.

Q. What is the advantage of doing that? There is a definite advantage, but will you explain what the advantage is?

A. Well, if a customer only requires 20 pounds pressure and you need 40 pounds to run the jet, there is no particular advantage in raising the pressure clear up to 40 pounds and cutting it back to the valve, but still there is another advantage in

(Testimony of Fred A. Carpenter.)

our particular construction that there is air present in the water, it can rise from that chamber and separate out, instead of going back on through the impellers and jet and tending to unprime it.

Q. You get the same advantage in Exhibit 3, don't you?

A. Except we do not have that priming advantage.

The Court: You do not have the what?

Mr. Bruce: The priming advantage.

Q. But you do get the advantage that you do not have to raise the water up to the pressure required by the jet and take it off the consumer use at that pressure; you take your consumer discharge off at an earlier stage of the pump, don't you?

A. That is a minor advantage but not a very strong one.

Q. It effects a saving in power bills, doesn't it?

A. To a very limited degree.

Q. But it does effect some saving?

A. To a very limited degree.

Q. Referring to Exhibit 8, you have a system where, if you open the low pressure discharge 12 while the unit is not running, the automatic switch will start the motor and the system will operate, won't it?

A. Water will flow from the tank through the piping, through the pump and out valve 12 until the pressure gets down to 20 pounds, and then the motor will start.

(Testimony of Fred A. Carpenter.)

Q. The same think will occur in Exhibit 3, won't it?

Mr. Mellin: Just a moment, Your Honor. In the first place, I do not know whether this witness is familiar with the operation of Exhibit 3. He is not a patent expert by a long way. Even Mr. Jacuzzi did not know how his own patent worked. I do not know how he expects Mr. Carpenter to know.

The Witness: That operated about the same way, Exhibit 3.

Q. (By Mr. Bruce): You as a pump man understand that figure, don't you, that drawing?

A. Yes, fairly well.

Q. What particular advantage do you get out of that?

Mr. Mellin: Out of what?

The Witness: Out of the low pressure discharge feature? [324]

Q. (By Mr. Bruce): Yes.

A. Well, when we advertised, we thought it would be quite an advantage, the fact that a man could irrigate with low pressure water and still maintain pressure on the tank, similar to the way we do it with our small turbine pump, but actually it has not proven very popular and we do not even recommend them that way any more.

Q. If you were carrying this to a discharge at a distance, and you opened, the pressure would automatically drop in the system and when it dropped

(Testimony of Fred A. Carpenter.)

below the minimum requirements upon which the switch would turn in, your system would start to operate, wouldn't it?

A. Sure, the same thing would be true of any pipe line coming from the pressure system. If you open the valve a mile away, the pressure would fall.

Q. That is true of this type of system in Figure 8?

A. This type or any type of system.

Q. In Exhibit 5 all the pressure from the high pressure side of the pump goes to operate the jet, does it not?

A. Within its range, yes, sir.

Q. In this case, when you installed the pump system, you did not have to make any adjustments affecting the high pressure side of the pump?

A. No, I do not quite follow your questioning, but we do not make adjustments to the high pressure side of the pump anyway. [325]

Q. You do not need any control valve affecting the adjustments of that pump in the installation?

A. We at times need a control valve on the tank.

Q. Does that control valve have an effect during the operation of the system?

A. Yes, whenever a customer wants to take a large volume from the pipe direct and irrigate with it, we recommend that he throttle it and keep the pressure at 20 pounds. That is indicated in our instructions.

Q. You recommend that the gate valve shown in the discharge to the pressure tank in Exhibit 5

(Testimony of Fred A. Carpenter.)

should not be used as a control valve in your literature, don't you?

A. We like to have that wide open.

Q. You leave that wide open?

A. And if there is going to be any control on the tank or the system, we prefer to have it on the discharge from the tank. There are obvious reasons for that. We want the air to be free to go through a large opening of the tank instead of being pinched through a small opening, which would be the case if it was being used as a control valve.

Q. You advocate that the control valve at all times should be left wide open, don't you?

A. We advocate that the gate valve be left wide open.

Q. The gate valve should be left wide open and no control valve is necessary in your system? [326]

A. In most cases, no, because the natural back pressure on the tank operates the necessary control to keep the pressure up.

Q. In the setup of your system in its manufacture you employ a standardized casting for your pump unit case, don't you?

A. We do that on all our line of pumps as far as it is practicable.

Q. On all the line of pumps from 5 through 9 you use a standardized casting in your design, don't you? A. We call it standard.

Q. They are uniform, are they not?

(Testimony of Fred A. Carpenter.)

A. Small pumps have a little smaller casting than the larger pumps.

Q. Mr. Carpenter, for pumps of the same capacity or size. A. The same size, yes.

Q. In Exhibit 7, you have not changed the basic casting any, have you?

A. We have added a casting.

Q. Will you step to Exhibit 7? Take this pencil and show the casting part that you have added. I wish you would take and cross section it so the court can see what you have added.

A. Do you want it cross hatched, or solid?

A. Cross hatched, please.

A. I think that covers it all, sir.

Q. Will you mark that part with a lead line A? Now, if we term the part of the casting in Exhibit 5 for the unit of the pump, the pump unit, a basic casting, you provide the same openings in all the basic castings, don't you?

A. I think I understand what you mean. This casting is the same as this one, and this casting is the same as this one. Is that what you mean?

Q. That is right, and the openings for various discharges are all the same, aren't they? In some of them you will have plugs, but the openings in the original castings are all the same?

A. All the same sizes, you mean? [327]

Q. No, all in the same positions.

A. I guess so. I can agree with that.

Q. You have an opening for the suction line of

(Testimony of Fred A. Carpenter.)

the pump, you have an opening for the pressure line of the pump, you have an opening in Figure 5—and I am pointing to Figure 5—you have a plugged opening there which can be used for discharge to service, and you have an opening which leads to the pressure tank, and the same openings appear in all your castings?

A. Yes, I would say so.

Q. And those openings are for the purpose of converting the systems for various purposes?

A. That is right.

Q. You said a while ago that you got pressure equalization in all pressure systems.

A. Of the jet type pressure systems.

Q. In other words, you do not have pressure equalization in your jet type system, do you, or in your turbine type system?

A. You can, or you can have it one way or the other. The pressure comes off from the turbine if you put a check valve between the turbine and the tank, or you can have it with a foot valve at the bottom and no check valve, and have pressure equalization in the turbine, also.

Q. But you do not sell them in that manner, do you?

A. We sell most of our turbines with the check valve between [328] the pump and the tank.

Q. That is the way you advertise and sell it?

A. Yes.

Q. If you took the check valve out what would

(Testimony of Fred A. Carpenter.)

happen, so far as the pressure tank is concerned? I am talking about your turbine pump as disclosed in your patent, that we talked about a little while ago.

A. As far as regular operation is concerned, nothing would happen. We have a certain reason for having that check valve in position.

Q. Wouldn't the water drain out of the tank?

A. No, because we have a foot valve at the bottom, also.

Q. Is that automatically started? A. Yes.

Q. There is no means shown in the patent, however, for doing that, is there? A. Oh, yes.

Q. For automatic starting?

A. Yes, there is a pressure switch, pressure gage.

Q. Where is the pressure switch shown?

A. At No. 11.

Q. How does that effect turning on the motor when you open the discharge for irrigation?

A. It will not effect automatic operation from this low-pressure discharge unless you also open a valve in the tank. [329] That is even taken care of by having a manual switch to turn on the motor with direct.

Q. In your pump system of Exhibit 5 water enters the first stage of your impeller in the casing from the suction pipe; it is discharged into the low-pressure chamber of the pump, the low-pressure side of the pump. It then is discharged into the intake of the second impeller.

(Testimony of Fred A. Carpenter.)

A. That is right.

Q. And a part of the discharge of the low-pressure, on the low-pressure side goes to service.

A. That is right.

Q. Now, the discharge to service is at a point higher than the intake of your second impeller, isn't it?

A. Yes, this point marked 8-B is higher than the impeller.

Q. Assume in Fig. 36 of Exhibit 5 we take the discharge at point A from the casing. Will your second stage receive an adequate amount of water during the operation of the system?

A. No, if the discharge point is large enough to take all the water delivered by the first stage of the impeller, naturally there won't be any water left for the second stage.

Q. In effect, what you do, you design to construct the casing of your pump in such a manner that the discharge to service from the low-pressure side of the pump is always at a higher point than the intake of the second impeller?

A. Why, yes. [330]

Q. In other words, your construction is such as to favor the second impeller?

A. I guess that is as good a way to put it as any.

Q. Don't you find the same condition existing in Exhibit 3? In other words, is not the discharge at high-pressure which feeds the jet favored over the low pressure?

(Testimony of Fred A. Carpenter.)

A. No, I would say the thing was reversed.

Q. You would say it was reversed. You would say in that case that you did not insure the feeding of the jet, but the favoring would be to the low-pressure discharge?

A. Yes, if full open throat.

Q. Comparing that with Exhibit 4, in that case do you have a favoring of the discharge to the jet?

A. Without going into details I would say no. Going by gravity alone it would appear obvious that the water would flow out discharge 77 and go up to the next stage of the impeller.

Q. Well, as the water enters from the suction line, it enters the first impeller?

A. That is right.

Q. Let us disregard the first discharge. It then goes to the second impeller. From the second impeller it divides and goes to the pressure tank and to the highest impeller, and the design of the pump is such that there is always enough water to operate the jet delivered by the last impeller?

A. I would say no. [331]

Q. Have you ever seen this construction in operation? A. No, I can't say that I have.

Mr. Bruce: I think we will introduce the Carpenter patent that the witness has been talking about.

The Court: Any objection?

Mr. Mellin: No objection.

(Testimony of Fred A. Carpenter.)

The Court: Mark it in evidence.

(The Carpenter patent referred to was received in evidence and marked Plaintiff's Exhibit 19.)

The Court: Mr. Bruce, are you going to be much longer with this?

Mr. Bruce: I may be.

(Discussion with respect to length of the case, after which an adjournment was taken until Monday, May 16, 1949, at 10:30 o'clock a.m.) [332]

Monday, May 16, 1949, 10:30 o'Clock A.M.

The Clerk: Jacuzzi vs. Berkeley Pump.

Mr. Bruce: Ready for the plaintiff.

Mr. Mellin: Ready.

* * *

FRED A. CARPENTER

recalled; previously sworn.

Cross-Examination

(Continued)

By Mr. Gray:

Q. Mr. Carpenter, in addition to being president and acting as an engineer, you also act as general manager of the Berkeley Pump Company, is that right? A. That is right.

Q. The same is true, is it not, with the predecessor companies, that is, the partnership and the old

corporation: you [333] always acted as the managing head? A. That is right.

Q. As part of your work, Mr. Carpenter, as general manager, and also as the designer of pumps, it is common practice for you, is it not, to completely familiarize yourself with the type of pumps manufactured and sold by competitors in the field?

A. Yes.

Q. And you do not remain oblivious to what the other pump manufacturers are doing, do you?

A. Oh, no, not at all.

Q. In that connection it is common practice for you and other people in this same business to obtain circulars and catalogs published and distributed by other people in the same business, is that true?

A. Yes. As a matter of fact, a good many of them we exchange.

Q. It is a sort of courtesy or reciprocal arrangement, and you keep files on the circulars of various pump companies that illustrate the types of pumps that they manufacture and sell, is that right? A. Yes, to a certain degree.

Q. Mr. Carpenter, I will show you a bulletin or circular entitled, "Presenting King Pump." It has Jacuzzi's name on it and it is marked "Copyright in 1941, Jacuzzi Bros., Inc.," and ask you whether you have ever seen this or a similar circular before?

A. I cannot say that I have seen this particular circular. I [334] have seen circulars somewhat similar.

Q. Maybe I can refresh your memory, Mr. Car-

(Testimony of Fred A. Carpenter.)

penter, if I may take that, please. I will call your particular attention to the next to the last page, where the pump entitled, "Jacuzzi Double Discharge Pump Performs the Impossible; No Control Valve Required," is illustrated. That refreshes your memory, does it not?

A. I have seen a cut of this particular pump, if that is what you mean.

Q. You saw that, did you not, in the latter part of the year 1941?

A. I would not say as to that.

Q. You do not recall whether that is the correct date? A. No.

Mr. Gray: May I have this marked for identification?

(The document referred to was thereupon marked Plaintiff's Exhibit 20 for Identification.)

Q. (By Mr. Gray): Mr. Carpenter, I show you the Jacuzzi catalog—this is Plaintiff's Exhibit 11—

Mr. Mellin: What is the date of that, Mr. Gray?

Mr. Gray: I am coming to that, Mr. Mellin. It is catalog No. 142, copyrighted 1941 by Jacuzzi Bros.

Q. I ask you whether you have ever seen that particular catalog, or one similar to it.

A. Yes, I am pretty sure I have seen this. [335]

Q. As a matter of fact, Mr. Carpenter, you

(Testimony of Fred A. Carpenter.)

have one or more of those catalogs in your file, have you not?

A. Yes, I am quite sure we have.

Q. You received that catalog in the latter part of 1941, did you not?

A. I am not sure when we received one.

Q. It may be I can refresh your memory if I call your attention to the contents. I will call your attention to pages 30 and 31, in which the deep well injector pump series DR Multi-stage is illustrated, no control valve required. Does that refresh your memory as to the time?

A. That does not help a bit on the time.

Q. It does not? A. No.

Q. May I call your attention to pages 32 and 33, where the Jacuzzi Dual Discharge Pumps are illustrated, Multi-stage Dual Discharge? Does that refresh your memory?

A. Not particularly.

Q. It does not. All right. Thank you. May I call your attention to pages 34 and 35, Jacuzzi selective stage discharge pumps, no control valve, appears and the pump is so illustrated. Does that refresh your memory, Mr. Carpenter, as to when?

A. No, it does not. After all, 1941 was the start of the war, and it has been quite a while ago.

Q. Events were rather confusing during that time. Do you know [336] how many of these catalogs came into your possession? I am referring to Plaintiff's Exhibit 11.

(Testimony of Fred A. Carpenter.)

A. It so happens I don't keep the file. I have someone else that does that. I glance at them and pass them on.

Q. You familiarize yourself with the contents of catalogs of that nature, do you not, as a pump operator and designer of pumps?

A. To a very limited degree. I do not concern myself too much with what competitors are doing, because we are always busy with our own developments.

Q. In your own developments, don't you, as general manager of the pump company, compare your developments with those developed by your competitors?

A. We compare final results, of course.

Q. Do I understand that you do not compare the various modes of operation illustrated in catalogs with your own?

A. As a matter of fact, our development in the engineering department, pattern shop, lagged so far behind our ideas that we did not have to reach out very far to keep ourselves very busy through designs.

Q. Mr. Carpenter, aside from these catalogs, you have seen the pumps illustrated in that catalog that I have just shown you, pages 30 to 35? You have seen the actual pumps, have you not?

A. You mean out in the field in operation? [337]

Q. Any place.

A. I couldn't be sure, but it wouldn't be neces-

(Testimony of Fred A. Carpenter.)

sary for me to see them. If I saw the catalog I would know how they worked right away.

Q. Do you have any recollection of seeing the pumps?

A. No. Of course, from a distance you see them in a store window, or something like that.

Q. I take it when you saw them in a store window you paid no particular attention to them; kept going?

A. I know there were lots of them. They were doing good business.

Q. Calling your attention to September, 1941, during that month, did your company exhibit pumps at the State Fair in Sacramento?

A. December?

Q. September, 1941.

A. I am not sure whether that was the year we skipped or the year before. We skipped one year in there pretty close.

Q. That matter was discussed in your deposition. Didn't you refresh your memory on it, whether it was, or not?

A. I didn't try to refresh it very hard. I think the fact was borne out. Whether it was 1940 or 1941 I am not sure.

Q. You are not sure whether your company exhibited the pump in 1941, is that right?

A. That is right.

Q. Do you have any recollection as to which of your employees [338] or officers were in charge of

(Testimony of Fred A. Carpenter.)

any exhibit during the month of September, 1941? I assume, however, if you do not know whether you exhibited, you would not know that, would you?

A. Generally, our Mr. Loughenberg had charge.

Q. Mr. Loughenberg—that was his prerogative usually? A. Yes, the sales manager.

Q. What is the nature of his connection with your company? A. He is sales manager.

Q. An officer also of the corporation?

A. That is right.

Q. What is his office?

A. He is vice president.

Q. Do you know whether or not any of your salesmen attended the Fair of 1941?

A. If it was held in 1941, probably every salesman attended the Fair.

Q. Did you visit the Fair in 1941?

A. Yes, I probably did, if it was held in 1941.

Q. And you looked at your own exhibit there, didn't you? A. Oh, yes, of course.

Q. Do you know whether Jacuzzi had an exhibit there at the same time?

A. Yes, they had one.

Q. Do you know where the Jacuzzi exhibit was with reference to your exhibit? [339]

A. Yes, they usually hold theirs in the same place every year.

Q. I meant where was it physically with reference to yours?

(Testimony of Fred A. Carpenter.)

A. Across the other side of the pool and up a little way from ours.

Q. In rather close proximity, was it?

A. Fairly close.

Q. And you had occasion, did you not, to walk by their exhibit?

A. That is just about it, walk by. That was about all.

Q. Did you notice who was in charge of the exhibit in Jacuzzi's?

A. Well, generally Mr. Jacuzzi was there part of the time.

Q. Mr. Ansoni? A. Perhaps Mr. Ansoni.

Q. You knew him quite well?

A. That is right.

Q. I take it you walked by and did not stop to discuss pumps or any subject with him?

Mr. Mellin: If he recalls.

The Witness: Not particularly. We talked about other things.

Q. (By Mr. Gray): While you were talking about other things you diverted your eyes away from the pumps there, did you?

A. They all looked the same to me—multi-stage pump, a single stage pump, and a few others.

Q. Didn't the multi-stage pump you saw there have more than one [340] discharge?

A. I couldn't say.

Q. Did the multi-stage pump that you saw there, Mr. Carpenter, resemble the structure shown in Plaintiff's Exhibit 3?

(Testimony of Fred A. Carpenter.)

Mr. Mellin: When was this?

Mr. Gray: September, 1941.

Mr. Mellin: He says he doesn't know whether it was 1940 or 1941.

Mr. Gray: Let us find out.

A. Why, yes. It looked something like that.

Q. (By Mr. Gray): Looked something like Plaintiff's Exhibit 3. All right. When did your company commence manufacturing and selling pumps containing more than one impeller stage? And by "your company," Mr. Carpenter, I mean the existing company or the partnership or the old corporation. Sometimes I refer to you. I refer to them, too.

Mr. Mellin: Your Honor, we are getting into where the second counsel is going to review what the first counsel asked.

The Court: Yes, this was gone over.

Mr. Mellin: He testified in 1937, 1939.

Mr. Gray: 1937. That is all I wanted. You have answered it for me, Mr. Mellin. Thank you.

Q. Prior to 1942 when you started manufacturing and selling the pump systems described in Plaintiff's 5 to 9, inclusive, you obtained your low-pressure discharge from taking it off [341] the suction line, is that right? A. Yes.

Q. At any time subsequent to the time that you commenced offering the pump system described in Plaintiff's Exhibits 5 to 9, did any of your catalogs describe a dual discharge injector pump

(Testimony of Fred A. Carpenter.)

where one of the discharges is taken off the suction line? Do you understand the question?

A. Yes. I do not think so.

Q. In other words, you stopped showing them in your catalog or publications from the time you started to manufacture and sell these pumps, Plaintiff's Exhibits 5 to 9; that is right, isn't it?

A. As a matter of fact, none of our pumps showed two discharges. Anybody who wanted a separate discharge, it was a special job, not shown in the catalog.

Q. After you started showing these pumps 5 to 9, you did show the dual discharge in those, and that was the time you started showing dual discharge pumps in your catalog, is that right?

A. That is right. [342]

Q. As a matter of fact, the pump that you have described, where one of the discharges is taken off the suction line, follows the general structure and mode of operation of the Jacuzzi patent, is that right? You are familiar with that.

Mr. Mellin: Your Honor, I think that question is highly improper.

Mr. Gray: If he knows.

Mr. Mellin: Read the question again, please.

(Question read.)

Mr. Mellin: Your Honor, whether it follows a prior patent or not is not in point. We have gone over this structure.

(Testimony of Fred A. Carpenter.)

The Court: I will sustain the objection.

Q. (By Mr. Gray): Mr. Carpenter, prior to 1942 did you ever manufacture and sell to the public any injector type pump systems with service discharge other than from the point of highest pressure as illustrated in Exhibit J and from the suction line as shown in that exhibit? Can you see at this angle? A. Yes.

(Question read.)

A. I think I understand your question. The answer is no, we did not, when you consider the complete injector type deep well pump.

Q. That is what I had reference to.

A. We had other pumps that had two discharges but not deep well. [343]

Q. Those we have gone over already.

A. Yes.

Q. Mr. Carpenter, prior to 1942 did you ever manufacture and sell to the public any injector type pump system having a discharge from an impeller stage at a pressure lower than the stage supplying the injector?

A. No, I do not believe we did.

Mr. Gray: That will be all, Mr. Carpenter. Thank you.

Redirect Examination

By Mr. Mellin:

Q. Mr. Carpenter, you were asked a considerable

(Testimony of Fred A. Carpenter.)

number of questions with reference to the Carpenter patent, Plaintiff's Exhibit 19. That is a turbine pump, isn't it? A. That is right.

Q. By the way, you still manufacture that line of pumps?

A. Oh, yes, we manufacture them.

Q. As a matter of fact, the difference between that type of pump and the type of pump that we are considering here is the difference in the respect of what use they are put to, isn't that correct?

A. Yes.

Q. I understand these systems we have been discussing, such as shown in Exhibit 5, are principally for household use and of low capacity; let us say 20 gallons per minute?

A. Yes, their capacity varies from 10 to a maximum of 50 or 60. [344]

Q. And the type of pump that is shown in the Carpenter patent, Plaintiff's Exhibit 19, is for capacities of 150 gallons a minute and more, is that correct?

A. That is right, a hundred gallons or more.

Q. A hundred gallons or more per minute, and that becomes the irrigation type of pump, as I understand.

A. Yes, that is the irrigation feature of that particular turbine pump.

Q. So you get a larger quantity?

A. A large capacity. The pressure may be similar to the capacity of the jet pump.

(Testimony of Fred A. Carpenter.)

Q. In other words, in an analogy with trucks, that would be doing the job of a five-ton truck, whereas the type shown in Exhibit 5 would be comparable to the pickup truck in a line of trucks?

A. That is right.

Q. As I understand it, that pump is more expensive in original cost, is that correct?

A. Yes, in original cost.

Q. And less expensive per gallon of water produced?

A. Oh, yes, much less.

Q. It would be like if you interchanged that one for this, it would be using a Cadillac for a Ford's job; so that we have two different fields of use between your turbine pump and these household water systems. [345]

Mr. Gray: We will stipulate to that. I do not think you have to go further.

Mr. Mellin: Mr. Bruce seemed to make considerable point about this.

Mr. Gray: He was just illustrating similarity in mode of operation as far as the discharge is concerned.

Mr. Mellin: He was making some other point than that, Mr. Gray, which he will argue rather strenuously on his brief. [346]

Q. What I hand you, Mr. Carpenter, is a modern Berkeley pump catalogue, Bulletin 801, which is descriptive of the uses and function of the turbine pump we have been discussing.

A. That is right.

(Testimony of Fred A. Carpenter.)

Mr. Mellin: May I offer that to illustrate his testimony as next in order, Your Honor?

(The bulletin referred to, No. 801, was thereupon received in evidence and marked Defendant's Exhibit AF.)

Q. (By Mr. Mellin): You still make single stage jet systems, don't you, Mr. Carpenter?

A. That is right.

Q. Which have only one discharge from the highest pressure? A. That is right.

Q. That suits another need, doesn't it?

A. That is right.

Q. That is, a need lesser than 5? A. Yes.

Q. That is still a standard part of your line?

A. Yes.

Q. Then you have another pumping system which pumps up, as I understand, to 3,000 gallons per minute? A. Yes.

Q. That suits still another line?

A. We have four lines for deep well pumping. They all overlap to some extent. [347]

Q. But they are all generally for a particular purpose. What happened to the pump development or manufacture of pumps by Berkeley, say, after December, 1941? I mean generally when the war started. I mean continued pump development. I mean for commercial use. Were you restricted at all, or what happened?

A. We were restricted—we were requested at

(Testimony of Fred A. Carpenter.)

least to streamline our operations, cut out new pump developments, put out the fewest models possible, and to streamline operations. Furthermore, we were restricted by quota. New developments practically came to a standstill until the war started to taper off.

Q. At that time did you build submarine pumps for the United States Navy?

A. That is right.

Q. Referring to all of these various exhibits for identification, 5 to 9, I believe, considerable question was raised about a uniform casting with all of these holes. For that particular type of pumping system you make, 5 to 9, is it more economical to make one pattern and one pump casting?

The Court: Mr. Mellin, wasn't that gone over?

Mr. Mellin: Yes, I have just one question to ask, Your Honor, with your indulgence.

The Witness: Yes.

Q. (By Mr. Mellin): Just make it brief. That is so that pump casting can be adapted to all varying conditions?

A. Sometimes I think they are so full of holes that they are [348] Swiss cheese, for plugs and all of that.

Mr. Mellin: That is all.

Mr. Gray: That is all.

Mr. Mellin: At this time, Your Honor, I should like to read into the record the deposition of Mr. Veronesi of Boulogna, Italy. It isn't very long. It is about forty pages.

May we follow the usual procedure, Your Honor? I will read the questions and someone will give the answers.

The Court: Can you state to me what the gist of the deposition is?

Mr. Mellin: Yes, the gist of the deposition is this, that Hugo Veronesi, who was a patentee of both of the Italian patents that we have been discussing, including the one 260,417, and the earlier 1913 patent, the deposition will show that he commenced manufacturing pumps in exact accordance with patent 260,417 somewhere in the neighborhood of 1923 and manufactured and sold them continuously in Italy until 1939, at the start of the war. The deposition also identifies certain publications illustrating these pumps which were made in accordance with the patent. The deposition will also show that the pump casing which is before Your Honor was one of the pump casings brought over from Italy, which was made some time prior to 1939. It was put together in that fashion to bring over. There were parts lying around the plant. It will also show that these pumps Eureka, as they are called by Mr. Veronesi—by the way, we have actual sales records of them here and drawings showing the construction and manufacture of those pumps made and the uses to which they were put, identical with that shown in the patent—it is for this purpose, Your Honor: it is for the purpose of showing that this prior Italian patent was a system of practicality and was actually manufac-

tured and sold. It was not a prior publication or patent which was dug out of ancient history and disinterred for the purpose of this case, which is a thing that counsel argued loud and long, why the practice has developed, to show the state of the art in connection with the prior patent. The purpose of the deposition is not to amplify, supplement or describe the prior printed publication but to show it was a live thing and had commercial success and was practicable.

Mr. Gray: If Your Honor please, whether a device had commercial success or whether anything was manufactured in Italy is immaterial, incompetent and irrelevant to the issue here. It is fundamental in the matter of patent law that a prior use or prior construction of a thing in foreign country is not a bar to the issuance of a patent here unless the patentee here knew of this at the time he made his invention, and therefore the only purpose or ground on which that would be competent at all would be in an endeavor to show what the patent drawing meant. Certainly it is incompetent for any other purpose.

(The matter was argued and a recess taken until 1:45 p.m.) [350]

Afternoon Session, March 16, 1949

Mr. Bruce: We were concerned with a stipulation pertaining to the deposition. Mr. Mellin's offer is to establish that the pump of the patent is an operate structure. Now, we will stipulate that defendant's interpretation of the Veronesi 1927 patent as illustrated in the dimensional drawing, Defendant's Exhibit Z, will operate as a pump system.

Mr. Mellin: That doesn't help us. I mean that would be begging the question entirely. I want to show not only it was an operative structure, but I will show that the exact pump of the patent operates.

The Court: Perhaps we had better go ahead with the deposition.

Mr. Mellin: I think so.

The Court: Are there any objections to the form of the questions that are of any consequence that I need to rule upon, or is the main objection the one of the admissibility of this kind of evidence?

Mr. Mellin: I think it is, your Honor, because we stipulated that all objections were reserved except those as to form.

Mr. Bruce: The form of the question was not objected to.

The Court: Are there any rulings that I would have to make in the course of the reading——

Mr. Mellin: Other than that, I don't think so,

or other than their general admissibility, though Mr. Gray seemed to [351] indicate otherwise.

The Court: Because if that were the case, then I think it would be unnecessary for you to read it, because whether you read it or not I would have to read it later—I can't carry that all in my mind—reserving the objection as to the admissibility of the testimony in general.

Mr. Gray: We take the position, your Honor, that the witness here—I think we should clear this up—that while his name is Veronesi, he is not the patentee.

Mr. Mellin: He is a son.

Mr. Gray: He is a son of the patentee; that questions were asked of him in this deposition concerning his opinion as to the mode of operation and other questions that would require an expert to answer. We take the position that in this deposition there is no showing that he is qualified to answer them.

The Court: Let's go ahead and read the deposition.

Mr. Mellin: May it be done in the usual way, by putting one on the stand to read the answers?

Mr. Gray: No objection.

The Court: Is there an original I can follow?

Mr. Mellin: May the record show that the interpreter was duly sworn and that the witness was duly sworn through the interpreter.

Just a moment, your Honor, there is some question existing [352] about the interpreter. I used

“he” instead of “you.” Counsel has no objection to us changing them as we go along?

Mr. Bruce: We have no objection.

(The deposition of David Veronesi was there-upon read into evidence.) [352-a]

Mr. Mellin: There is no cross-examination.

Mr. Layne.

WILLIAM ROBERT LAYNE

called on behalf of defendant; sworn.

The Clerk: Will you state your full name?

A. William Robert Layne.

Direct Examination

By Mr. Mellin:

Q. Will you give your name, age and residence, Mr. Layne?

A. William Robert Layne, 67 years old, Orinda, California.

Q. What is your present occupation?

A. I am retired.

Q. Have you had any previous experience with centrifugal pumps? A. Yes, sir.

Q. For how long a period of time?

A. Most of the time for some little over 55 years.

Q. And I understand that between 1918 and 1924 you were associated with the Standard Oil Company, is that correct? A. Yes, sir.

(Testimony of William Robert Layne.)

Q. And what was your capacity and what were your duties at that time?

A. Most of that time I was engineer specialist at the Richmond refinery in charge of steam and hydraulic problems and particularly pumps and all that has to do with them. [353]

Q. I understand also that you were educated as a mechanical engineer at the University of California, although you did not graduate?

A. Right.

Q. Now, I also understand that between 1918, you were with the Byron Jackson Pump Company, subsequent to 1924?

A. Most all of that time, yes, sir.

Q. During what period were you with Byron Jackson, Mr. Layne?

A. From 1918 until—with the exception of about a year, I mean, from '24 to about '35.

Q. And what was your occupation with Byron Jackson and your duties at that time?

A. I was what they called an engineering, sales engineer, working with the oil companies mainly.

Q. Doing what, particularly with reference to any particular subject?

A. The pumping of oil with centrifugal pumps.

Q. When did you leave Byron Jackson?

A. 1935.

Q. And where did you go then?

A. Back to the Standard Oil Company.

Q. And then you stayed there from 1935 until 1947?

A. Right.

(Testimony of William Robert Layne.)

Q. And what were your duties and what was your position with the Standard Oil Company during that period? [354]

A. I was in the main engineering department as an engineer specialist in sole charge of pumps and pumping problems.

Q. So you have had all, during that time, practical experience in the design and manufacture of centrifugal pumps? A. I did.

Q. And between 1916 and 1918, as I understand it, you were engaged directly in the manufacture of rotary pumps? A. I was.

Q. And did you have anything to do with Standard Oil's pumping problems, such as problems with the Arabian Oil Company? A. I did.

Q. Would you tell us in just a sentence what your duties were in that regard?

A. My duties were to make the specifications for pumps and examine bids and pass on any orders that were made in the refineries and pipelines of Aramco, Arabian American Oil Company, as well as Standard Oil.

Q. Now, have you examined Italian patent No. 260, which is Defendant's Exhibit N, in evidence?

A. I have.

Q. And do you understand the construction and operation of the pumping system disclosed in that patent? A. I do.

Q. And at the time that you examined it, did you determine from the patent itself the construc-

(Testimony of William Robert Layne.)

tion and mode of operation of the [355] pumping system therein? A. I did.

Q. Did you require any additional information other than supplied by the patent itself?

A. No, sir.

Q. Now, will you tell us briefly, please, how many discharges does the centrifugal pump have which is shown in that patent? A. Two.

Q. Now, the first discharge is the one which I point to on Exhibit N-2, 9, or not? A. Right.

Mr. Bruce: If Your Honor please, I think the witness ought to testify rather than for the attorney to point out on the drawing and say, "Is this so-and-so?" In other words, he puts the words right in the mouth of the witness, what he wants him to testify to.

The Court: Well, I imagine that counsel is perhaps doing it——

Mr. Mellin: To shorten time, Your Honor.

The Court: ——in his desire to save time. I am sure he didn't put the witness on without having talked to him first, and he knows what he is going to say.

Mr. Bruce: That is probably true.

Mr. Mellin: I would be awfully stupid if I didn't have.

The Court: Well, why not ask him to point it out?

Q. (By Mr. Mellin): Would you point out the two discharges on [356] Exhibit N-2?

(Testimony of William Robert Layne.)

A. No. 9.

Q. That is what discharge, the first discharge?

A. That is the first discharge. And on your exhibit I believe it is No. 5——

Q. On N-2 is the second discharge?

A. Yes, sir.

Q. Now, where does the first discharge, No. 9, receive its water? From where?

A. From the first stage runner.

Q. And is that labeled on Exhibit N-2?

A. That is No. 1, I believe.

Q. No. 1 in pencil. And where does the second discharge, from where does the second discharge receive its water?

A. From the third stage, No. 3, I think there.

Q. Does the drawing of the Italian patent, which is enlarged in Exhibit 2, clearly disclose such a construction to you as an engineer in a practical manner or not?

A. Let's see. Which is No. 2?

Q. This is N-2, this drawing.

The Court: You had better read that.

Q. (By Mr. Mellin): Does the drawing N-2——

A. Oh, yes, I see; yes, sir.

Q. Does that clearly disclose to you as an engineer such a construction as you have just testified to? [357]

A. Oh, yes.

Q. And would you state from your experience as

(Testimony of William Robert Layne.)

an engineer and in manufacturing pumps that that drawing utilized the ordinary drafting methods of disclosing that construction?

A. Almost completely.

Q. Now, except for the fact that you have testified there is a discharge No. 9 eliminating that factor as the remainder—and that there is a passageway from the first stage out through 9, is the remainder of the pump of conventional or unconventional construction? A. Conventional, at that time.

Q. Would you explain that just briefly?

A. The earlier multi-stage centrifugal pump was developed in Europe and were constructed as shown in this section drawing.

Q. With the stay bolts running through?

A. With the stay bolts running through parallel to the shaft.

Q. Now, I show you an exhibit which you have seen before, which is labeled Defendant's Exhibit C. You have examined that drawing, Mr. Layne?

A. Yes, sir.

Q. Now, does that or does that not correctly illustrate construction of the centrifugal pump, such as you have testified to, having the construction you testified to, in connection with Exhibit N-2 of the Italian patent? A. That's correct. [358]

Q. And the casing in front of you, which is labeled Exhibit Y, is that a correct physical representation of what the drawing in N-2 illustrates to you? A. Yes, sir.

Q. By the way, what are the orders of pressure

(Testimony of William Robert Layne.)

which are developed within centrifugal pumps of the character used in home water systems, such as these?

A. Well, a little home water pressure system might be as much as 40 or 50 pounds.

Q. Are you familiar with hot oil pumps?

A. I am.

Q. In which they use double casings?

A. Yes, sir.

Q. Now, what was in the order of internal pressure of such pumps?

A. Oh, that might be as high as a thousand pounds.

Q. Per square inch? A. Yes, sir.

Q. And the ordinary centrifugal pump used for pumping systems of this sort, what order would the internal pressure in those pumps be?

A. Well, pumps such as this might be as much as—depending on speed and diameter of the runners—it might be as much as 250 or 300 pounds.

Q. Now, you said, as I understood you, that when you were with [359] the Byron Jackson Company, you were connected with farm installation, the installation of farm pumping systems?

A. Somewhat, but—

Q. Somewhat. Now, would you say that an ordinary pump, for commercial use,—that is, commercial irrigation—a pump that didn't produce more than 25 gallons per minute, would you say that that was adapted for commercial irrigation?

(Testimony of William Robert Layne.)

A. No, generally speaking, I would say not.

Q. What would you say the minimum requirements for a commercial irrigation pump per minute would be?

A. That is debatable, but I would say 150 gallons a minute, perhaps.

Mr. Mellin: Your witness.

Mr. Bruce: May we take a short recess, Your Honor?

The Court: Do you wish a recess?

Mr. Bruce: Yes, Your Honor.

The Court: We will take a short recess.

(Recess.) [360]

Cross-Examination

By Mr. Bruce:

Q. Mr. Layne, you are not under subpoena here today, are you? A. No, sir.

Q. You are being paid for your testimony?

A. I hope so, yes, sir.

Q. Well, I hope so, too. Now, I would like for you to step up to the drawing, or step down to the drawing Exhibit N-2, which is an enlargement of the Veronesi patent of 1927, and point out on that drawing, if you can, any showing of a completely open flow path through the pump unit from the suction end of the pump. Do you understand the question? A. I do.

Q. From the suction end of the pump. Start with the suction end of the pump.

(Testimony of William Robert Layne.)

A. The suction end is here.

Q. (By Mr. Mellin): Is that 6?

The Witness: Fixed?

Mr. Mellin: The suction is 6?

A. Yes, sir. Well, that is the suction end, yes.
The suction is right in here.

Q. (By Mr. Bruce): That is behind——

A. This broken line shows the suction flange on the back of the pump, or on the front of the pump.

Q. I see; all right. Just go ahead. [361]

A. And the liquid goes from the runner out into the case, here. A portion of it goes out as indicated by the arrow.

Mr. Mellin: Through 9.

Mr. Bruce: Just a moment, Mr. Layne.

Mr. Mellin: Let him answer. You asked the question.

Q. (By Mr. Bruce): Just a moment. You say it goes out there, and you passed it through a structure?

A. Oh, no. Oh, no.

Q. Well, I am asking you to show on the drawing where that appears.

A. Yes; give me a chance. It goes right around this boss which connects across here. The bolt goes through that. The water goes around it here and here. That is not used in modern practice very much.

Q. There is no open path shown on the drawing from the first stage out to the discharge 9, is there?

A. Well, the draftsman forgot to put in a couple of dots on there.

(Testimony of William Robert Layne.)

Q. He forgot; it isn't shown?

A. No, it isn't shown, but it wouldn't fool anybody that knew his stuff, either.

Q. In other words, you interpret that in that manner, do you? A. Oh, yes.

Q. That is your interpretation?

A. Absolutely. [362]

Q. Well, now, follow your interpretation on through the pump unit.

A. Well, I would interpret that the water comes from this runner, goes around through this vane, down into this runner, around through the diffusion vane, here, and similarly through the third runner.

Q. The third runner isn't shown?

A. No. The casing is shown.

Q. You are assuming that that is there?

A. Oh, yes, you are justified in assuming that.

Q. Could that be chamber at that point?

A. It is a chamber. It has a runner in it, and diffusion vanes.

Q. Then where does it go to?

A. Then it would come out of this opening, here, which would be here.

Q. The "opening here"—will you give it a number? A. It is numbered 5 here.

Q. No. 5. That would be the discharge from the mouth of the pump?

A. Well, I wouldn't call it the mouth; I would say discharge from the third stage.

Q. Discharge from the final stage?

(Testimony of William Robert Layne.)

A. Right.

Q. That goes then where?

A. That then is the liquid that actuates your jet pump and [363] goes through your tube to the jet pump.

Mr. Bruce: I see. That is all.

Mr. Mellin: No further questions.

The Court: That is all of the witness?

Mr. Mellin: That is all.

The Court: Oh, by the way——

Mr. Mellin: Just a moment. I didn't mean all my witnesses; I don't want to ask any more questions.

The Court: Did you ever testify before in a patent case?

A. No, sir.

Q. First time you have ever testified?

A. Yes, sir.

Mr. Mellin: If your Honor please, at this time counsel for the defendant were going to decide if they had any objection to Exhibit M-1 for identification, the translation of Italian patent No. 139,161; to N-1, which is a translation of Italian patent No. 260,417, and Exhibit U-1, a translation of German patent No. 376,684. At this time I would like to offer these translations which have heretofore been marked for identification in evidence.

The Court: Very well. Let them be marked.

Mr. Bruce: I have had a chance to compare the

two Veronesi patents. I haven't had a chance to check the translation of the German patent. [364]

The Court: Well, if you want to offer a different translation you may do so.

(Exhibits M-1 for Identification, N-1 for Identification and U-1 for Identification were thereupon received in evidence.)

Mr. Mellin: I would also offer at this time—this was only offered for identification—Exhibit AD, which was the evidence of a sale of a pump by the Berkeley Pump Company to the Powers Home Equipment Company.

Mr. Bruce: What was that, Mr. Mellin?

Mr. Mellin: AD was the transaction—it was offered for identification, then gone into, then I neglected to offer it in evidence. May that be received, your Honor?

The Court: All right.

(Defendant's Exhibit AD for Identification was thereupon received in evidence.)

Mr. Mellin: I would like to offer in evidence at this time Defendant's Interrogatories and the Plaintiff's Answers to the Defendant's Interrogatories.

The Court: All of them?

Mr. Mellin: Yes; there aren't too many.

Mr. Mellin: At this time, your Honor, I would like to offer the deposition of Mr. Armstrong, one of the officers of the plaintiff, in evidence as the next in order.

Mr. Gray: In that we have, if your Honor please, many questions asked based or predicated upon the thesis that Mr. [365] Armstrong is the inventor, and asking him what his concept was of the invention. Now, we discovered during the trial that that was an improper question insofar as this case was concerned. We object to each and every one of them on the same ground that your Honor sustained the objection when we asked that question, namely, of course, that it calls for the conclusion and opinion of the witness, and that it purports to usurp the function of the court. Insofar as those questions are concerned, I think they are objectionable under the ruling that your Honor has made. Insofar as the rest of it is concerned, I do not know of any objection.

Mr. Mellin: If your Honor please, there is a little difference. I didn't ask him to interpret the patent; I asked him what they invented at that time.

Mr. Gray: What was his inventive concept?

Mr. Mellin: What he invented, not with relation to the subject of the patent. That is the court's function. I was trying to show what he thought or believed he invented, at the time they made this invention, and what it was at that time, so that we could make the comparison with the patent.

Mr. Gray: You framed your question in the same manner we did here, however.

Mr. Mellin: Except I didn't ask him to interpret the patent.

The Court: Well—— [366]

Mr. Mellin: I think, if your Honor please, there is only going to be a small portion of the deposition that we would refer to. We don't have a jury, and I think the Court——

The Court: I think it is proper to ask a man what he thought he invented.

Mr. Gray: That is what it goes to, what was his inventive concept at that time.

The Court: To that extent and for whatever weight it may have, I will allow those questions.

Mr. Gray: In other words, your Honor can defer a ruling on any of those things when the subject is gone into or reliance is placed upon it.

The Court: Well, I don't want to defer too much. Whether there is any extensive briefing necessary in this case I don't know yet. I haven't heard all the evidence. Suppose I defer a ruling on that. No, I don't think that would be advisable. I will overrule the objection to those questions and let the answers stand for what they are worth. If they involve hearsay, if they are usurping the function of the Court, I won't consider them.

Mr. Gray: Thank you.

Mr. Mellin: That is exactly the way we would like it. So that may be offered as the next in order?

The Court: Very well.

The Clerk: Which deposition is that? [367]

Mr. Mellin: That is the deposition of John E. Armstrong.

The Clerk: It has been the practice not to give them an exhibit number, Mr. Mellin. Is that agreeable?

Mr. Mellin: It is all right with me. What do we do with the exhibits to it? Some of them are already in evidence; most of them—not most of them, but a lot of them are in evidence. I mean I am confused as to the procedure. I have the exhibits which were marked——

The Court: Do you want to offer some more exhibits?

Mr. Mellin: Those exhibits to the Armstrong deposition, the ones that are not already heretofore offered, of course. May I offer those exhibits not heretofore offered as one exhibit, your Honor?

The Court: Is there any objection to that procedure, or would you prefer to have them offered seriatim.

Mr. Bruce: Pardon me. I am expecting Mr. Gray to follow that.

The Court: Mr. Mellin wants to offer in evidence the exhibits to the Armstrong deposition that have not heretofore been offered in the trial in one group. I don't know whether you are satisfied with that, or whether you wish them offered seriatim.

Mr. Bruce: I think they should be offered, not as a group, but——

Mr. Mellin: May I offer Bulletin B, Jacuzzi Pumps, which [368] was offered as Exhibit B to the Armstrong deposition in evidence as the next in order?

(The document referred to was marked Defendant's Exhibit AJ-1.)

Mr. Mellin: The enlargement of Figure 1 of Jacuzzi patent No. 2,157,099 as AJ-2.

(The document referred to was marked Defendant's Exhibit AJ-2.) [368-a]

Mr. Mellin: Enlargement of the Piccardo patent—no, this is already in evidence as AJ-3.

The enlargement of the Piccardo patent 2,424,285 as AJ-4.

Mr. Bruce: This is what you just put in over here.

The Court: You have got that in, haven't you?

Mr. Bruce: You just put that in.

Mr. Mellin: No, I didn't—that is 285, and I should have read it 958. AJ-4 is 2,344,958.

(Whereupon, enlargement referred to, 2,344,958, was received in evidence and marked Defendant's Exhibit AJ-4.)

Mr. Mellin: Soft copy of United States Letters Patent 1,059,954, as AJ-5. This is the Hilliard patent.

(Whereupon, Hilliard patent, No, 1,059,954, was received in evidence and marked Defendant's Exhibit AJ-5.)

Mr. Mellin: And the enlargement of Exhibit C attached to defendant's interrogatories as AJ-6.

May that be stricken, Your Honor? That this is this one (indicating).

Mr. Bruce: Mr. Mellin, you stated to the Court at the beginning that you were relying upon nine patents. Now you are introducing others. Are you introducing these intending to rely upon them?

Mr. Mellin: No, they are just explanatory of the witness' testimony on one point, Your Honor. It is not in anticipation—it is pertinent to show that the witness—to explain the answers [369] of the witnesses with respect to centrifugal pumps having more than one discharge, that that was old in the art.

The Clerk: You have still got that one yet, Mr. Mellin?

Mr. Mellin: Just leave that out. I am not going to put these in. We can take the other deposition. And I want to put in the enlargement, the Italian patent drawing of 260,417, as the next in order. That is AJ-6, Mr. Clerk?

The Clerk: Yes.

The Court: Well, you have got that in already, haven't you?

Mr. Mellin: No, Your Honor.

The Clerk: He withdrew it, Your Honor.

Mr. Mellin: I withdrew the other AJ-6, Your Honor.

(Whereupon, Italian patent's enlargement, 260,417 was received in evidence and marked Defendant's Exhibit AJ-6.)

Mr. Mellin: That is all, Your Honor.

The Court: Wait a minute. Now, isn't that a duplication of N-2?

Mr. Mellin: No, it isn't, Your Honor. The witness gave a considerable explanation on this.

The Court: Oh, I see.

Mr. Mellin: It is in connection with his testimony.

The Court: I see.

Mr. Mellin: The defendant rests.

(Defendant rests.)

Mr. Bruce: Call Mr. Armstrong. [370]

JOHN E. ARMSTRONG

recalled in rebuttal on behalf of the plaintiff; previously sworn.

Direct Examination

By Mr. Bruce:

Q. Mr. Armstrong, in 1941 did your duties with the Jacuzzi Bros., Inc., include the supervision of the compiling of catalogues and advertising matter relative to your company's business? A. Yes.

Q. I show you Exhibit 20 for identification, and I ask you if that was a circular published by your company? A. Yes.

Q. When was it distributed?

Mr. Mellin: Just a moment, Your Honor. It seems to me that doesn't call for the best evidence. His verbal recollection—there should be records.

A. This publication was received the latter part

(Testimony of John E. Armstrong.)

of July and distributed immediately thereafter to all of our agents and accounts throughout the United States and foreign countries and was also distributed at the State Fair at Sacramento in the fall.

Q. How many of these circulars were printed and distributed, if you know? A. 10,000.

Q. Did you say that they were distributed at the State Fair at Sacramento? [371] A. Yes.

Q. That was in September of 1941?

A. Yes.

Q. I see.

Mr. Bruce: We offer in evidence Plaintiff's Exhibit 30 for identification as Exhibit 20.

The Court: All right; it may be received.

(Plaintiff's Exhibit 20 for identification was received in evidence.)

Q. (By Mr. Bruce): Now, I show you Exhibit 11 and ask you if that is a catalogue published by your company? A. Yes.

Q. When was this catalogue printed and published, if you know?

A. The catalogue was printed in the latter part of 1941.

Q. And when was it published?

A. You mean when it was——

Q. Distributed.

A. It was distributed in the latter part of 1941.

Q. Do you know how many catalogues, copies of the exhibit, were printed? A. 20,000.

(Testimony of John E. Armstrong.)

Q. And to what point were they sent?

A. They were sent to all of our accounts and all of our sales representatives throughout the United States and foreign countries, and to a great many of our competitors. [372]

Q. How many catalogs of the type of Exhibit 20 did you have printed?

A. The King Pump, the first printing was 10,000.

Q. And did you print most of those?

A. Yes, we only have a few—

Q. Will you identify the pages in the catalog, Exhibit 11, in which the pump system of the patents in suit are illustrated and described?

A. Thirty through 35, inclusive.

Q. Do the pump systems in the patent drawings, Exhibits 3 and 4, comprise a substantial part of your company's business?

A. Yes, they do.

Q. When did you first put on the market the pump systems having the features of construction and the mode of operation of the pump systems illustrated in 3 and 4?

A. May I have that read back?

(Record read.)

A. March, 1940—I am sorry, 1941.

Q. March of 1941?

A. Yes.

Q. Did Jacuzzi Bros., Inc., have a display at the State Fair at Sacramento in September of 1941?

A. Yes.

Q. Are pumps and pump systems embodying the

(Testimony of John E. Armstrong.)

operation, the mode of operation illustrated in those Exhibits 3 and 4—were [373] they displayed at such fair? A. Yes.

Mr. Mellin: Just a moment, to let my objection in. May I object to that, if your Honor please, as it seems to me that what was displayed would speak for itself as to whether they embody the patents. That is not for this witness to decide.

The Court: Well, where is the rebuttal here now? What are you meeting with this testimony?

Mr. Mellin: We have made no contention that they didn't disclose them, your Honor, at any time.

The Court: Where is the rebuttal in this?

Mr. Bruce: The point is, your Honor, that it lies in the fact that the defendant gained knowledge of the products of the plaintiff, and in 1941, and produced their line of pumps from the knowledge so gained in 1942.

Mr. Mellin: That is your argument.

The Court: Well, that is part of your affirmative case of infringement. What has there been, put on by the defendant, that calls for this rebuttal testimony? You can't just go ahead and keep on trying a case forever. The rebuttal should be limited to meeting the question of validity, as I see it.

Mr. Bruce: I will withdraw the question.

The Court: You put on your case as to infringement, and I haven't seen anything, any testimony that has been offered, [374] that has anything to do with the subject-matter that you are now covering, unless my memory fails me.

(Testimony of John E. Armstrong.)

Mr. Bruce: I will withdraw the last question.

The Court: Am I not correct about that? I don't recall any such testimony.

Mr. Mellin: We didn't contest, your Honor, when they put the catalogs out or when they exhibited at the fair.

The Court: There is no dispute about that.

Mr. Mellin: And besides, the question is improper because it compares the mythical structure they showed at the fair with the patents, which is not the proper way of disposing of it.

The Court: Isn't that argumentative?

Mr. Mellin: Surely.

Mr. Bruce: You see, your Honor, they contend, and there is testimony in here, that their structures exhibited in these illustrations are old, and what we want to show is that in 1941 or '42 they didn't consider that it was old.

Mr. Mellin: Oh, that is argument, your Honor.

The Court: Well, what are you adding to this case? The defendant's officer has already testified that he was in Sacramento and that he saw Mr. Jacuzzi's pumps displayed there. Now, do you want to have him say the same thing?

Mr. Bruce: Well, I am perfectly willing to withdraw the last question now. We can go into something else, which is [375] in dispute.

The Court: I think that it wouldn't be a rash assumption to say that both these concerns knew pretty well what the other one was selling. You

(Testimony of John E. Armstrong.)

don't have to have a blueprint of that, particularly.

Q. (By Mr. Bruce): Now, Mr. Armstrong, I hand you an impeller stage and ask you if you can identify the same (handing to witness).

A. I can.

Q. And what is the stage that you have in your hand?

A. It is the discharge stage from one of our pump series.

Q. One of the pumps, discharge stage as shown in Exhibit 3 or 4? A. Yes.

Mr. Mellin: Just a moment. Your Honor, I object to that on the ground that from the very face of it, it is not constructed as a discharge phase in the patent, unless the groundwork is laid that the discharge stage in the patent conforms to this, which it very obviously does not. Then I object to it as being improper.

The Court: Well, isn't that argumentative? What do you want to do with this thing you have got here? Do you want to offer it in evidence? Is that what you are leading up to?

Mr. Bruce: Yes, and I wish to offer it in evidence, your Honor. [376]

The Court: Well, you were asking the witness, though, to give his opinion as to whether that is a teaching of the patent?

Mr. Bruce: No, it is simply the construction of the stage, his impeller stage.

The Court: In a pump which they are producing?

(Testimony of John E. Armstrong.)

Mr. Bruce: In the pump which they are producing.

The Court: Well, what is the materiality of that, now, in rebuttal?

Mr. Bruce: Simply this, your Honor, that Mr. Carpenter testified under cross-examination on Friday that there was nothing in the exhibit 3 which would tend to lift the water to the highest stage of the pump if the low discharge 81 was open.

Mr. Mellin: If your Honor please, the patent specifically makes a drawing of what is used and specifically describes what is used on that point. Now, what they are doing is introducing an entirely different structure and trying to say that it is the patent structure. It is improper. The patent speaks for itself on that point. If Mr. Carpenter is wrong, the patent will show it; and if the patent doesn't show it, then there is no testimony that can be offered here on the point.

The Court: Well, that has always been my opinion on these patent cases. I think you have already had Mr. Armstrong testify as to what those patents show. I don't know how this is [377] going to add anything to that, particularly in rebuttal.

Mr. Bruce: All right, we will withdraw the offer.

The Court: You have already put on two or three days of testimony as to what these patents mean, and you have described them with diagrams and everything else. Now, what is this in rebuttal?

(Testimony of John E. Armstrong.)

Isn't the important thing you have to meet in rebuttal whether or not there is something new in this invention that has not been disclosed in these other things that your opponent has presented?

Mr. Bruce: That really is a matter of argument, too.

The Court: That is what I would get down to, because, Mr. Bruce, that is what you have to combat when you are up before an ignorant judge in these patent matters. This is not the Patent Office, and once you get into court, the judge doesn't have these myriad little pigeonholes that he can put things into, as in the Patent Office. He can only decide the case on some big principle that in equity appeals to him as constituting an invention. So you have to put up with us Federal Judges in these patent cases and try to convince us that there is something aside from all these multitudinous technicalities they go into in the Patent Office that convinces a judge in equity that there is something that calls for the extension of this monopoly to an individual. What has he done that raises the matter to that of sufficient dignity to say that he shall have a monopoly? That is a big problem [378] when you get into the court in these matters, and particularly so when you get before judges who don't know too much about these technical matters that are presented here. I think attorneys would be well advised if they didn't clutter up the courtroom with these tremendous number of exhibits

(Testimony of John E. Armstrong.)

and diagrams, and if they would just try to have a witness show the court that he has got something that is of sufficient, great importance as an improvement or as a novelty that the judge can say, "There is a man who is entitled to a monopoly for that thing." That is the way to get to a judge, if I may be so bold as to say so, in patent cases. And that is why I may be a little impatient at some of these matters that are presented. I think that in rebuttal, your problem is to have your witness take these exhibits that you have put in, that are patents, and point out wherein is the essential new thing.

Mr. Bruce: That is what we are trying to do, your Honor, in our case in chief.

The Court: I think that is your problem in rebuttal, as it is in every—not any more you than any other lawyer, in rebuttal—where prior art is involved.

Mr. Bruce: Well, your Honor has made a suggestion here which would be timely to follow.

The Court: I think so.

Mr. Bruce: And let us take——

The Court: That is your real issue, I think, the real [379] issue in rebuttal. I don't think that—is this the witness you have in mind to testify as to that, or do you have some other witness? I am not attempting to tell you how to put in your case, but I am just saying to you that I think that is the problem which interests me. I say this for your

(Testimony of John E. Armstrong.)

benefit, so that you may take advantage of it, because I think that attorneys shouldn't be required to work in the dark. I am in grave doubt as to anything that has got such a sufficient dignity in the general field here that is persuasive to the judge sitting in patent cases, and sitting as a judge in equity, that constitutes such novelty as distinguished from ordinary mechanical development and development of the artisan in this business of improving these pumps as justifies the granting of the monopoly of the patent. I have that doubt in my mind.

Now, I think that is the most important part of the case, and I would go into that if I were you, with such evidence as you have, and by argument. It may be you can reach it by argument drawn from the evidence already in; I don't know. I am not intending to say that, but I think that is your problem, more than anything else.

Mr. Bruce: Well, we will be glad to follow along that line I think before reverting back to those patents, I would like to take up something with respect to some of the testimony that has come in here by Dr. Folsom, and in connection with this so-called Veronesi patent. That is one that has cluttered [380] up the record quite a bit. And I think there has been so much thrown at your Honor in the matter of prior art that the real essence of the invention involved here has probably been lost sight of, the real issue.

(Testimony of John E. Armstrong.)

The Court: Well, I understand, and I notice that the pamphlet you have shown the witnesses, that the plaintiff company believes that the revolutionary thing that it did was this injector pump, that has this dual discharge. I may be wrong about it, but I see that that is the emphasis here, and I have heard some of the witnesses say here. Now, what is that? That is what I want to know. What is that? Where is the novelty in it? Where is the big thing that persuades the court of equity to say—because you are now in the court, you are not in the Patent Office—that that is big enough to warrant a monopoly for it? Or is it that big? Because that is the distinction in equity, when you are distinguishing, when you get into court; whether or not the thing that you are asking to be protected has arrived at that stature that distinguishes it from the ordinary improvement that a mechanic could make in a pressure system pump of this kind, a pumping system or pressure pumping system of this kind.

Mr. Bruce: One of the great difficulties in cases of this kind lies in the fact that after a matter has been discovered, that the problem solved always appears.

The Court: I know that; it seems simple. I have noticed [381] that. It is always simple after you tell somebody about an accomplishment.

Mr. Bruce: After you don't—

The Court: That's right.

(Testimony of John E. Armstrong.)

Mr. Bruce: As the Supreme Court said, anyone could discover America after 1492.

So the inventions in effect lie here in the discovery of something which after discovery and application, then anyone could come along and say, "Well, why didn't I think of that? It is simple. Anybody could have thought of it."

The Court: That is true, but the burden is now one of showing that that something after the event was at the time of sufficient dignity to warrant the granting of a patent, as distinguished from the improvements that would ordinarily be made by those who make their contributions in their construction of these pumps. Now, that line of demarcation is one that is sometimes difficult to make, and there aren't—the courts have announced all kinds of rules by which a judge is supposed to judge those things, but I have never found that the rules are of any help, because you can't fit these things into pigeonholes. You have to take each case as it comes up and the judge has to do the best he can with trying to do equity. And his best, in my opinion, is not too good in any of these cases. It is none too good. But whatever it is, he tries to do the best he can with what is presented to him, to see whether [382] or not, in his opinion, the particular thing that is now claimed reaches that stature of dignity that puts it into the new, as distinguished from the ordinary improvement. I will put it that way. Isn't that about it?

(Testimony of John E. Armstrong.)

Mr. Bruce: Yes. I will follow your Honor's——

The Court: I don't want to talk too much about this thing now, but I think that is the real nub of rebuttal in most of the patent cases, where it is claimed that there is novelty.

Mr. Bruce: Now, following that line, then, if your Honor please——

The Court: You said you had some other witness?

Mr. Bruce: I have a witness here.

The Court: Why don't you put the witness on whom you brought over especially?

Mr. Bruce: I brought him over especially. I will withdraw Mr. Armstrong, if I might, because this witness is a busy man.

The Court: All right, there is no objection to that?

Mr. Mellin: No, your Honor.

Mr. Bruce: Not that Mr. Armstrong isn't.

Mr. Bruce: We will call Mr. Granberg.

I might state for the benefit of the court that the testimony of this witness is connected with the interpretation, or connected with the Veronesi patent. [383]

The Court: Very well.

ALBERT J. GRANBERG

called as a witness on behalf of the plaintiff in rebuttal; sworn.

The Clerk: Will you state your name, please?

A. Albert J. Granberg, G-r-a-n-b-e-r-g.

Direct Examination

By Mr. Bruce:

Q. Mr. Granberg, your full name is Albert J. Granberg? A. Yes.

Q. And what is your age and residence, please?

A. I am 58 years old, live at 6001 Rockwell Street, Oakland.

Q. What is your occupation, Mr. Granberg?

A. I am president and general manager of the Granberg Corporation.

Q. How long have you been president and general manager? A. 12 years.

Q. What is the business of the Granberg Corporation?

A. Manufacturers of pumps and meters.

Q. Is the business of your company world wide, or purely local?

A. No, we have pumps in all the continents.

Q. Any particular type of pumps and meters that you manufacture?

A. Yes, we manufacture a positive discharge pump. We have started a self-priming centrifugal pump, and we manufacture a positive displacement meter. [384]

(Testimony of Albert J. Granberg.)

Q. In connection with your work as president and general manager, do you perform any engineering service?

A. Yes, I still do all the high points in the engineering and every now and then get in the drafting of it.

Q. Prior to the formation of your corporation twelve years ago, what was your experience relating to the manufacture and design of pumps?

A. Well, I was sales engineer and designer and so forth with the Brody Company. I was designer and production engineer with the Granberg Meter Corporation previous to that.

Q. I understand you have taken courses in mechanical and electrical engineering at the University of California Extension Division?

A. Yes, I took night courses for a period of about two years.

Q. What experience have you had in the making and rigging of shop drawings?

A. Well, I am the fellow that makes them, a lot of them.

Q. How long has this experience lasted?

A. Oh, since 1915.

Q. Have you made and patented any inventions?

A. Yes, I have between 40 and 50.

Q. In what fields do they lie?

A. Well, mostly in the mechanical field, such as meters and pumps.

(Testimony of Albert J. Granberg.)

Q. What experience have you had in the installation and operation [385] of pumps?

A. Well, I have been directly concerned with the operation of pumps ever since 1919, when we first started selling meters, because most meters, the liquid for the meters is propelled by pumps, and you often run into pump problems.

Q. Are some of those pumps of the centrifugal type. A. A majority are centrifugals.

Q. Have you any knowledge or general knowledge of pumps of the injector type?

A. Yes, I have general knowledge of it.

Q. Are you familiar with the drawings and specifications translated into English of the Italian patent of Veronesi, in 1927, Defendant's Exhibit N (handing to witness), and the translation?

A. Yes, I have seen this before. [386]

Q. (By Mr. Bruce): Now, calling your attention to the drawing N-2, Mr. Granberg, which is in evidence, the patent drawing, are you able as a practical engineer and one skilled in the art to determine from the drawing alone the flow path of the water through the pump unit?

A. I can determine only what is shown from the drawing.

Q. Referring to N-2, can you determine from that drawing alone? A. May I—

The Court: Oh, yes, go down.

A. I want to see if they are both the same drawing. With the exception of a passage from one

(Testimony of Albert J. Granberg.)

runner to the other, there is no outlet or discharge shown, also there is no discharge indicated on the drawing.

Q. Is there any indication on the drawing showing any part of the flow path?

A. Outside of a passage from No. 1 impeller to No. 2 there is none.

Q. Is there anything on the drawing which indicates how the water gets into the pump unit?

A. There is a dotted line here.

Q. It will be easier for you to refer to Exhibit N-2 in your testimony.

A. There is a dotted line showing a flange and I can only make an assumption that this opening in the center of the flange leads to the eye of the impeller, but that would be an outlet. [387]

Q. Is there anything on the drawing which indicates to you how the water gets from the input of the pump unit to the discharge?

A. None whatsoever.

Q. As a practical engineer and pump man of over 30 years' experience, are you able to conceive in your own mind how the pump structure of Exhibit N-2 can be made to function?

A. Would you ask me that question again?

Mr. Bruce: Would you read it?

(Question read.)

A. Why, yes, there is various ways of discharging the liquid from the pump.

(Testimony of Albert J. Granberg.)

Q. Will you elaborate on that, Mr. Granberg?

A. Well, discharge could be had and is often practiced, a discharge from each stage. Other pumps, again, the liquid will travel from one stage to the next and have a final common discharge, which is generally done in most pumps where there are multiple stage pumps.

Q. Now, did you make a study of the specifications? A. Yes.

Q. The English translation. I will show you the English translation. After reading the English translation or reference to the pump, are you able to determine the flow path of the fluid through the pump unit?

A. Together with the translation, the pictures become quite [388] clear and it speaks of one discharge; it also speaks of one pressure.

Q. What does that mean to you?

A. That would mean that there could not be a multiple discharge when it speaks of one; it couldn't be a multiple pressure when it speaks of one, and you couldn't have one pressure if you took multiple outlets for each stage.

Mr. Mellin: If your Honor please, I think what the witness is now doing is paraphrasing the specification in his own way, which is the Court's function, to determine those specifications, unless he limits himself to the precise specifications because the witness will undoubtedly have to admit the patent discloses this to be a discharge and this—

(Testimony of Albert J. Granberg.)

and now the witness says there is only one discharge. I think he should be limited to the translation. And if not, they are limited to his own translation, and a different translation is out of order.

Mr. Bruce: That is a matter of cross-examination for Mr. Mellin.

Mr. Mellin: It is, your Honor, but I think he is testifying to what is in the translation. That is usurping the function of the Court. The Court can read. We have had the drawing interpreted. I have no objection to his interpreting what he sees in the drawing, but when it comes to interpreting the specifications that is the Court's function.

Mr. Bruce: Your Honor, the patent is a publication, and the [389] publication must be read from its four corners. What Mr. Mellin is saying is that you can only consider the drawing; you have to disregard the specification in interpreting the patent.

Mr. Mellin: I am saying no such thing; I am suggesting that the Court can read the translation itself, and we don't need this witness' own paraphrasing of the translation; it speaks for itself.

Mr. Bruce: The witness is interpreting the drawing in the light of the translation. He says he can't make anything out of the drawing itself, so he refers to the translation to see if he can get any help. When he refers to the translation, something is disclosed in there which gives him an interpretation of that drawing. I want the witness

(Testimony of Albert J. Granberg.)

to show what that interpretation is, what this witness gets from the printed word in combination with the drawing.

The Court: All right; let him answer.

Q. (By Mr. Bruce): Now, Mr. Granberg, can you state, after reference to the specification in connection with the drawing, that you can state the flow path of the fluid through the pump unit?

A. The flow path to the pump units as described in this specification would indicate that a discharge—one discharge—is divided.

Q. And where is that discharge divided?

Mr. Mellin: In his opinion.

Mr. Gray: If the Court please, counsel is continually [390] interrupting.

Mr. Mellin: I don't want to, Your Honor——

Mr. Gray: If he has objection, I think he could formally make it, if Your Honor please.

Mr. Mellin: May I make it as an objection? If this is coming in as an opinion, let us have it as his opinion and not attempt to make it as a fact.

The Court: I take it it is an opinion.

Mr. Bruce: Of course it is an opinion. Mr. Mellin knows it.

The Court: We will have the question read.

(Question read.)

A. The discharge is divided after it has been discharged from the pump.

Q. (By Mr. Bruce): Now, what do you mean by that, Mr. Granberg?

(Testimony of Albert J. Granberg.)

A. Well, we make a pump with two discharges ourselves, or two—one discharge and two outlets, I should say; excuse me.

Q. Will you step down to the chart, please, and point out what you mean; follow the flow path as you interpret it from the drawing and specification, and refer to the numbers on the chart?

A. Liquid coming into the eye of this impeller plainly shows a discharge from this impeller through this pathway into that next impeller.

Q. Impeller 1?

A. Into impeller 2. And it shows a discharge from impeller 2 [391] into an orifice and the drawing does not show thereafter where that orifice leads to.

Q. If you will hesitate just a moment, Mr. Granberg; we seem to have run into some difficulty with the charts. Now, if you will proceed——

A. I can not interpret from this drawing whether there is a chamber in there, whether it has another impeller in here, or whether the thing is entirely solid. That I can not interpret. After the liquid passes into this section——

Q. “This section” is identified as 3?

A. That housing identified as 3—after that apparently is divided into two outlets, which is shown by these arrows as I see them here.

Q. One discharge going to what? Going into the jet?

A. The outlets and discharge may be two differ-

(Testimony of Albert J. Granberg.)

ent things in case of multiple outlets. I don't wish to be misunderstood. The discharge of the pump, as I have been trained, is the liquid discharge by the runners or rotors.

The Court: By the what?

A. By the runners, rotors or impellers. They are called by all those names at various times—commonly known. Now after the pump is discharged into a chamber, it could then be divided into a number of outlets.

Q. (By Mr. Bruce): And what outlets is the discharge divided into here? [392]

A. This shows two outlets.

Q. You are pointing to No. 5?

A. Yes, No. 5 and No. 4.

Q. And No. 4, or 9? 9 would be the outlet, wouldn't it?

A. Yes, that is an outlet. It has two numbers—4 and 9.

Q. 4 and 9. Now, the water which passes—under your interpretation, as I understand it, it enters at the inlet of the pump, which is shown behind here, you said—we will mark this, the dotted lines in there, we will mark that A—entering the pump casing at what point?

A. It would enter the pump casing at the point indicated by the dotted line of this flange?

Q. Yes. And from there where would it lead?

A. Lead to the eye of the impeller.

(Testimony of Albert J. Granberg.)

Q. The eye of the impeller is right at this point? A. That would be at this point, yes.

Q. We will mark that B. From the eye of the impeller will you follow the path?

A. Through centrifugal force it will be thrown outward to this opening.

Q. "By opening" what do you refer to?

A. Shown directly in front of the impeller.

Q. In front of the impeller. We will mark that opening C.

A. Then the liquid would lead through this orifice to the eye of the next impeller. [393]

Q. Through the orifice—we will mark that D—and the next impeller, which is numbered on the drawing No. 2. A. 2.

Q. All right.

A. The same action takes place in the second impeller as in the first, the water passing out through an orifice into another orifice or chamber.

Q. Is that chamber——

A. Thereafter the drawing does not disclose where the liquid goes.

Q. This is the chamber that you refer to?

A. Yes.

Q. We will mark that E. All right. Now will you follow the course further?

A. Well, the liquid doesn't—I mean the drawing doesn't indicate where the liquid goes from this orifice.

(Testimony of Albert J. Granberg.)

Q. How do you conceive that it goes after reading the specifications?

A. But the specification tells me that it is then divided in two, one for consumption and one for injection back down to the injector.

Q. I see. And in other words, your interpretation is that the discharge at 9, that would be a discharge to service? A. Divided discharge.

Q. Is divided, but it is divided after the water has passed [394] through all the impellers in the pump?

A. The drawing nor the specifications don't show or indicate any other division.

Q. Now, then, Mr. Granberg, referring to a three dimensional drawing, does that represent your interpretation of the patent that you get from the face of the patent and the specifications?

A. May I say it this way: This drawing complies to the description shown in the patent or illustrated in the patent.

Q. Now, for His Honor, will you point out the path of flow of the fluid through the pump starting with the suction pipe?

A. In that flange illustrated the liquid going into the eye of the No. 1 impeller, passing out through an orifice leading into the center of the second impeller; repeating itself again, passing out through an orifice again going into the eye of a No. 3 impeller, then passing out of No. 3 impeller through an orifice and into a chamber, where the liquid then divides into two outlets.

(Testimony of Albert J. Granberg.)

Q. One to the pressure pipe of the pump?

A. One discharge leading down into the injection——

Q. Injector assembly?

A. Injector assembly, and the other——

Q. To service?

A. As a patent described, leading out to the service.

Mr. Bruce: I will offer in evidence the three dimensional drawing illustrative of the witness' testimony as plaintiff's [395] next in number.

(The drawing referred to was marked Plaintiff's Exhibit No. 21 in evidence.)

Mr. Bruce: All right; you may take the witness.

Cross-Examination

By Mr. Mellin:

Q. Mr. Granberg, in the first place, during the years that you were with Ralph N. Brodie Company, Ralph N. Brodie Company made nothing in the order of what we know as the conventional centrifugal pumps, did they? So therefore that was a period of approximately, let us say from 1925 or 1926 up until you left the Ralph N. Brodie Company?

A. I was with the Ralph N. Brodie Company from '26 to '36, yes.

Q. And during that time the Ralph N. Brodie Company were not interested in and did not make

(Testimony of Albert J. Granberg.)

anything that was the equivalent of a centrifugal pump? A. No, they did not.

Q. And you spent all of your time as an employee of that company, didn't you?

A. I spent all of my time as an employee of the company.

Q. You were with them as late as 1942?

A. No, I left the Brodie Company in 1936.

Q. (By Mr. Mellin): Now, Mr. Granberg, so during that period you were not interested in any engineering problems on centrifugal pumps?

The Court: I asked that question because I was wondering whether this witness was connected with the company when I had the litigation with the Hydraulic Press Company in '42.

Mr. Mellin: Yes, I understand. [396]

Q. Referring to your own pump manufacture, you testified that the Granberg Company make a pump. That isn't a centrifugal pump as we understand centrifugal pumps, is it?

A. Yes, I do manufacture a centrifugal pump.

Q. When did you commence that manufacture? That is the one you said in your testimony you just started? A. Yes.

Q. But the other pumps that you make were made like the universal joint of an automobile, what we call a knuckle joint?

A. They are positive displacement pumps.

Q. They are not centrifugal pumps; in other

(Testimony of Albert J. Granberg.)

words, you can use those pumps either as a meter or a pump, isn't that so?

A. You can not use them as a meter or a pump.

Q. You use them as pump? A. Yes.

Q. They have offset shafts and not one that angles? A. May I explain?

Q. Go on and explain. Do you have any literature?

A. A positive displacement pump is a pump that delivers a given amount of revolutions.

The Court: Mr. Mellin, can't you get down to the issues of this case?

Mr. Mellin: Yes, Your Honor.

The Court: Everybody skirts all around it. Why don't you [397] get right down to it?

Q. (By Mr. Mellin): On Exhibit No. 21, Mr. Granberg, does it accurately show the discharge 9 as shown in the drawing of the Italian patent N-2?

A. The Italian patent doesn't show a discharge.

Q. You say that because what you see is a section—a piece of metal in section with a bolt going through it at the throat of 9?

A. That is a metal section, of course.

Q. With a bolt?

A. Not a discharge through it, no.

Q. You say that is what indicates there is no discharge through the bolt?

A. It shows no discharge below it.

Q. It shows an arrow extending from the inside of the first stage out, doesn't it?

(Testimony of Albert J. Granberg.)

A. May I look and see it? That doesn't indicate a discharge from this stage.

Q. I don't ask that. I asked you isn't there an arrow starting from within the chamber and extending through 9?

A. That isn't considered as a center line through the bolt.

Mr. Bruce: Just a moment, Mr. Mellin. Your question is misleading.

Mr. Mellin: He can protect himself.

Mr. Bruce: You are talking about a chamber and you are [398] pointing to a discharge.

Mr. Mellin: I beg your pardon; I asked if the arrow didn't start within the first stage chamber and extend out through 9. It is obvious, isn't it?

A. In the general practice of making drawings, that wouldn't be an indication of a discharge.

Q. I see. And also because of the fact that there is a solid section in the throat of 9 that tells you on the drawing that there is no discharge there?

A. To show a discharge you would have to have a dotted line in back of the heavy section.

Q. That was the ordinary drawing convention, Mr. Granberg, was it?

A. That would be a conventional way of showing the discharge—the outlet.

Q. I would like to call your attention, purely as a matter of drawing—you know what a foot valve is? A. Yes.

Q. You know that the water that comes up from

(Testimony of Albert J. Granberg.)

the foot valve has to get in, if it is to a pump, it has to get in in some sort of a pipe, isn't that correct? A. Yes.

Q. I call your attention to Exhibit 3, and I show you what appears to be a solid section below the number 15 between the foot valve and what appear to be the pipes for the entry? [399]

A. Yes.

Q. Is that a conventional way of indicating that structure?

A. You would assume this to be a pipe; it is shown the thread of a pipe and it is shown an opening, a hole, within the pipe. [399-A]

Q. All right. Now, I am calling your attention—11 is the foot valve, isn't it?

A. It is a foot valve, yes.

Q. Now, there *must* a fluid communication between the foot valve, 11, and one or two of these pipes up above it, isn't that so?

A. It shows fluid communication between the foot valve.

Q. It does? Now, I call your attention to a solid section between the foot valve and those pipes. Now, does that show any indication that fluid can pass from the foot valve into those pipes or not?

A. This drawing does not show any indication of the passage through that wall.

Q. Does not show it? A. No.

Q. And then as a matter of fact, there are no water—no water from the well could ever get into the pump if that was a fact, isn't it?

(Testimony of Albert J. Granberg.)

A. I did not say that, but I say it shows nothing.

Q. Now, wouldn't that teach you that that is a rib of the part that I am marking?

A. You may say the draftsman made a mistake. If that is a rib, he should have shown it dotted across there.

Q. That is the part I am marking 15-A. Now, would you say that to you as an engineer that would show you that there was a complete partition, a water-tight partition, between the foot [400] valve and the pipes?

A. Standard drafting, it shows a solid section.

Q. So there would be no communication between the foot valve, 11, and the pipes up above?

A. The drawing is wrong; it should be dotted lines if it is intended for a rib.

Q. I see, all right. Now the same thing would be true, wouldn't it, of Exhibit 4? And I call your attention to the foot valve of a structure in the lower right hand corner.

A. It is also shown as a solid section in the drawing.

Q. And your opinion as to the solid section through the outlet 9 is based on the same premises that you say that section 15-A and the Exhibit 3 is a solid section?

A. My opinion is based on the fact that it is not shown—it is actually shown as a solid section.

Q. In both instances?

(Testimony of Albert J. Granberg.)

A. In both instances; they are both shown as solid sections.

Q. Now, Mr. Granberg, the purpose of a water system such as this is to provide for you the water for use, isn't that correct? A. Yes.

Q. And the water for use is the water which you desire in a particular quantity or at a particular rate or at a particular pressure, isn't that so? That is the water for use; that is what determines what you want your pump to produce, isn't that so? [401]

A. Your question is not clear.

Q. I will reframe it. In other words, the prime object of a water pressure pump system is to provide to your house or to your garden water at a particular pressure or in a particular quantity rate per minute? I mean, that is what you buy a pump for, isn't it, to get water?

A. The pumps are used for many purposes, and the primary reason for a pump is to transfer water from wherever it be, up from a well, to farm use or house use or any other purpose; it is still a pump.

Q. That is correct. I am not disputing that. And you want the water that the pump gives you at some particular, in some particular quantity or at some particular pressure?

A. In cases pressure *are* required at a particular pressures.

Q. Yes. And so, then, when you want to buy a pump structure for your house, you will desire

(Testimony of Albert J. Granberg.)

that that pressure to your house be ordinarily of some particular pressure point, wouldn't you?

A. It depending on the designers.

Q. I don't mean that, but I mean ordinarily. Now, city pressure is 50 pounds, isn't it?

A. Yes, I would assume so in most cases.

Q. So that a household system, you would desire a pressure at at least above a minimum necessary to operate your appliances in the house?

A. I would say it would be desirable to have a pressure system [402] in a house.

Q. And you want it above some minimum pressure?

A. Well, what the general public would want I am not qualified to tell you.

Q. But it would have to be at some pressure, wouldn't it, to get it to your house in the ordinary instance?

A. To bring it to the house it would require pressure.

Q. Yes. So now, as a matter of fact, the translation tells you—it doesn't tell you that the water is divided at the third or last stage, does it? It tells you that first you bring the water to a desired pressure, doesn't it?

A. It speaks of the pressure.

Q. It speaks of bringing it up to a desired pressure, doesn't it?

A. It speaks of bringing the water to the pressure.

(Testimony of Albert J. Granberg.)

Q. Well, I will read you the translation:

“In the pump the pressure of the liquid is raised to the desired limit and the liquid itself then divided as mentioned hereinabove, into two parts; one of which is directed into the aforementioned line, 2, downwards while the upward goes upward into the aforementioned line 9.”

Now, isn't it just as feasible that the water is raised to the desired pressure wanted at the house, which is the first stage, part of it going through 9 and the rest being directed downward through 5 after passing through these stages to the jet? [403] Isn't that just as feasible an explanation of that operation as the one you have given?

A. That may be desirable. The specification, however, mentions dividing the pressure.

The Court: Dividing what?

The Witness: The pressure.

The Court: The pressure?

The Witness: Yes—assuming that it is only one pressure.

Q. (By Mr. Mellin): And again, Mr. Granberg, if you wanted to divide the water at this pressure that is coming out of 5, wouldn't the ordinary plumber or any engineer just put a tee on Exhibit 5 and take part of it off and run the other part down to the jet? Why would he have to reconstruct his pump to do it?

Mr. Bruce: Oh, well, that calls for——

A. Convenience.

(Testimony of Albert J. Granberg.)

Mr. Bruce: That is argumentative, Your Honor.

A. Convenience. We have two discharges on our pumps for convenience to the installation.

Q. But you don't have more than one stage in your pump? A. That's right.

Q. You just have the one?

A. We have two outlets, though.

Q. But you would offer only one pressure, and it is not a centrifugal pump? A. No. [404]

Q. Now, the meters that you were talking about, they are all piston type, aren't they, the meters that you worked with outside of some grease meters that rotated—they were positive displacement, too, weren't they? A. Yes.

Q. And the other meters you worked with used pistons? A. Yes.

Q. Now, these 40 or 50 patents that you have, they relate primarily to meters from a construction and an operational viewpoint; they are nothing like the structure shown in this Italian patent, isn't that so?

A. Not all together. As I said before, in meters you come in contact with a lot of pumping problems and in designing a meter service station pump unit, it was necessary to include pumps. In designing bulk plant distributing unit, you must have pumps. In designing truck installation of meters, you must have pumps.

Q. Now, Mr. Granberg, referring to the section

(Testimony of Albert J. Granberg.)

that you mention was a solid section, which I am going to indicate by an arrow on No. 2, and by the letter A-1, you will agree with me that that is a round boss, wouldn't you? Do you know what I mean by a round boss?

A. You mean a boss——

Q. A-1, for the bolts to pass through.

Q. A boss for the bolt to pass through—it is not so indicated.

Q. But it is not so indicated. But I notice that you—— [405]

A. It could be.

Q. I see. You have drawn it on your drawing that way?

A. If you want to use your imagination, of course that could be a lot of things could be made out of a drawing.

Q. All right. Now, assuming that the section A-1, the top of which is at the outside diameter of the casing, assuming that is a solid partition across 9, you can't get any fluid, it is humanly impossible to bring fluid from any point there, isn't that so?

A. I did not specify how or state how the fluid was brought to this outlet. But the drawing does not show how; that I did specify.

Q. All right. I understand that. Now I am going to mark a point here A-2, which is a solid section across the inner throat of 9, is that correct?

A. Yes.

Q. Now, if that is a solid section completely across the throat of 9, then it is humanly impos-

(Testimony of Albert J. Granberg.)

sible to get water to 9 from any point in the pump, even the way you have described it on your illustration, isn't that a fact?

A. There appears by looking at this view to be considerable space between the bolt bosses. Whether the liquid is intended to pass full length through, which it apparently must do in this case by looking at the outside of the drawings.

Q. Now, you still haven't answered my question. A-2, you said, [406] was a solid section which would be a partition across the inner side of 9. Do I understand your testimony correctly?

A. It shows a solid section.

Q. Would that be a complete partition across the throat of 9? A. That is not shown.

Q. So you don't know whether it is, or not?

A. I do not.

Q. But you assume in your illustration that it is not?

A. I do not assume the illustration. I state the picture does not show it.

Q. All right, in your illustration you assume it is a round boss, is that correct (indicating)?

A. This illustration shows it to be a round boss.

Q. And that is what you assume is the construction of—

A. Many other drawings mention—many other ways and means could be used to bring water to that outlet.

Q. Now, I want to get an answer to this one

(Testimony of Albert J. Granberg.)

question, Mr. Granberg, and I will save you a lot of time. If what I have marked A-2 is a complete partition across the throat of 9 (No. 15-a), as you have testified is the case in 15-A in Exhibit 3 is a complete partition across them, then you can't get water from any point, the interior of the pump, to pass out through 9, isn't that a fact?

A. I will restate it. That drawing shows a solid partition and does not show where the orifice may go. [407]

Mr. Mellin: May I have that answer stricken, Your Honor, as not responsive?

Q. I am asking you if it is a solid partition across there, is it humanly possible to get any water out of 9 at all?

Mr. Gray: The Court should take judicial notice that if there is a solid partition you couldn't put water through it, without asking the witness—if that is all the question is directed to.

The Court: Well, of course I can't tell whether there is some other way. I think counsel is entitled to an answer to the question.

The Witness: Would you state the question—am I to interpret the drawing, or is this an assumption?

Q. (By Mr. Mellin): All right, you said that the part I have marked A-2 on N-2 is a solid——

A. It shows a solid partition, all right.

Q. And it doesn't have any dotted lines, so there isn't any passageway through it?

A. It does not show any dotted line.

(Testimony of Albert J. Granberg.)

Q. So there is no passageway through it on either side?
A. It shows no passageway.

Q. All right. Now, therefore, if that is the case, A-2 must be a solid partition across the inner end of the discharge outlet 9, isn't that so?

A. From the drawing it shows no orifice to the discharge. [408]

Q. Will you answer my question that way; so that would be a solid partition across the inlet of 9 in that circumstance?

A. It does not, the drawing does not indicate it is a solid partition across, necessarily.

Mr. Gray: We are going to assume——

Mr. Mellin: I can't get an answer here. That is why I put it in that form.

A. Well, the question you ask is impossible to answer.

The Court: Why is that?

The Witness: Well, he is asking that if it was a solid wall across the outlet would it be an opening in it. Well, of course not. If it was a solid wall.

The Court: Well, I thought you said that the drawing showed it to be solid.

The Witness: The drawing shows it as solid.

The Court: So that according to the drawing, and in your opinion, there is no way of getting the water out of there, isn't that right?

The Witness: The drawing does not show it.

The Court: That isn't what I asked. Would you read this?

(Testimony of Albert J. Granberg.)

(Record read.)

The Witness: According to the drawing, I see no way of getting out through the outlet.

The Court: All right. Now you can ask him.

Q. (By Mr. Mellin): But yet the patent teaches you, does it, [409] Mr. Granberg, that they expect a discharge through 9 of water? A. Yes.

The Court: Then you could say, after having read the specifications and the rest of it, that while it appears that way on the drawing, that nevertheless there is, looking at the whole picture, there is a way provided for?

The Witness: The specification definitely shows that—they specify that, yes.

Mr. Mellin: Would you read that last answer? I didn't hear it.

(Record read.)

The Court: In that respect, then, it is not unlike the drawing in Exhibit 3 that he showed you down there?

The Witness: Which is Exhibit 3?

Mr. Mellin: Beg your pardon, Your Honor?

The Court: No, the one behind that. In that respect it is not unlike the drawing in Exhibit 3, the foot valve?

The Witness: Yes.

The Court: Because there you have the solid surface there, too, but apparently there is a means of bringing the water through?

(Testimony of Albert J. Granberg.)

The Witness: It is an assumption; I assume—the picture shows it solid, though.

Q. (By Mr. Mellin): Now just a couple of questions more, Mr. Granberg. Now,— [410]

The Court: Well, I am afraid—

Mr. Mellin: I am going to quit, Your Honor.

The Court: Well, I am going to—I don't want to shut you off. We just can't finish the case today.

Mr. Gray: If we could finish Mr. Granberg, it would be appreciated.

The Court: Well, I have got to leave in a few minutes, and I don't want to shut you off from your rebuttal. I mean from any further questions you want to ask.

Mr. Mellin: If there are any further questions they want to ask, Your Honor, I would rather it be deferred until tomorrow morning.

Mr. Bruce: I don't see any further ones up to the present time.

Q. (By Mr. Mellin): All right, then, Mr. Granberg, the various lines with arrows on them, broken lines, with dots throughout the pipes from the discharge 5 down through the pipe 2 and through the jet 1 and up through the pipe 7—those arrows are indicative of the direction of the flow of the fluid through the pump, isn't that true? A. Yes.

Mr. Mellin: That is all.

The Court: What do you mean by "a dual discharge pump"?

(Testimony of Albert J. Granberg.)

A. A pump having a discharge and dual outlets.

Q. All right. Is this one, the Italian patent? Does it show [411] that?

A. According to the description, it is a dual outlet pump and a single discharge.

Q. Well, now, I don't quite understand that. What is the difference between a dual outlet and one discharge?

A. Well, if you have discharges from more than one stage, you would have two pressures, because each stage will bring up so much pressure.

Q. I see what you mean.

A. Then you could not speak of the pressure, you would have pressures—You are speaking of two of them. Now, the discharge of a pump, or from a pump, is considered the liquid that is being put out by a pump, whether it goes to one stage or ten. Then after it leaves the pumping unit, it may be divided into two, three or more.

Q. I understand what you are saying.

A. That is what we do in our pump; we divide it after it leaves the pump. [412]

Q. (By Mr. Mellin): Because you only have one stage? A. Well, we only have one stage.

Q. All right, Mr. Granberg, just one question. You have seen multi-stage centrifugal pumps before? A. Yes.

Q. In which they have a discharge from separate stages? A. Yes, I have.

Q. In which case they would get discharges at separate pressures? A. Yes.

(Testimony of Albert J. Granberg.)

Q. And that was old at least 15 to 20 years to your knowledge? A. I would say so, yes.

Mr. Mellin: That is all.

Redirect Examination

By Mr. Bruce:

Q. Have you seen that dual discharge at different pressures in the pumps employing the injector?

A. No, I have not.

Mr. Bruce: That is all.

Mr. Mellin: No further questions, your Honor.

The Court: All right, are both sides satisfied to let this witness go?

Mr. Bruce: Yes, your Honor.

Mr. Mellin: Yes, your Honor.

The Court: All right, thank you. [413]

(Whereupon, following a general discussion among Court and counsel relative to the progress of the case, an adjournment was taken until 9:30 o'clock, a.m., tomorrow morning, Tuesday, May 17, 1948.) [413-a]

Tuesday, May 17, 1949, 9:30 o'Clock A.M.

The Clerk: Jacuzzi Bros. vs. Berkeley Pump Company.

Mr. Bruce: Ready. [414]

* * *

Mr. Bruce: Mr. Armstrong.

JOHN E. ARMSTRONG

recalled as a witness on behalf of plaintiff in rebuttal, and having been previously duly sworn, testified as follows:

Direct Examination

(Continued)

By Mr. Bruce:

Q. Mr. Armstrong, in your experience as an engineer being in the pump business, are you familiar with the type of pumps that were generally used in the industry and the problems they presented prior to the making of the inventions here involved? A. I am.

Q. From your experience, there is nothing new about a multi-stage pump, is there? A. No.

Q. Nor using a pressure tank? A. No.

Q. Nor pressure switch? A. No.

Q. Nor using an injector? A. No.

Q. As far as the centrifugal pump system is concerned, and without an injector, there is nothing novel about taking [415] off two service discharges, is there? A. No.

Q. Prior to the inventions in suit how were the low-pressure discharges taken from an injector pump system?

A. The low-pressure discharge was commonly taken from the suction line, or that is one method generally used for specific installations, because it had two disadvantages: First, when we take a low-

(Testimony of John E. Armstrong.)

pressure discharge from the suction line, it does not deliver as much water, which for irrigation that is what you want, the quantity of water—it does not deliver as much water as would regularly come from a normal pump discharging from the highest stage. It also presents the difficulty that in many instances the taking of a discharge from the suction line would result in loss of prime.

Then, for an irrigation discharge or a low-pressure discharge in a conventional unit it was also possible to take off from the pressure tank and restrict that opening with a valve. If you did not restrict it with the valve you would reduce the pressure in your tank. If you restricted it with a valve, then you restricted it and got less water. Of course, low-pressure discharge, the pressure in the system can also be changed by varying the adjustment or setting the pressure switch.

Q. Mr. Armstrong, will you tell us what is new or unique in the water system of Exhibit 3? [416]

A. Your Honor, I made some notes this morning about five o'clock on this subject. I wonder if I might read them.

The Court: It doesn't make any difference to me if counsel has no objection.

Mr. Mellin: I suggest if he has notes and is going to read them, that he offer the notes in evidence and save us the time.

Mr. Gray: If the Court please, he is using it to refresh his memory.

(Testimony of John E. Armstrong.)

Mr. Bruce: That is the purpose.

The Witness: Patent 285 has three important features: First, it provides a discharge from the system at a pressure lower than that used to drive the injector. That has never been done before in a conventional system, and results in increased capacity. It was contrary at the time, it was contrary to the regular teachings of the conventional practice in the industry, which was to take off either from the tank or from a discharge in the suction, which has the disadvantages that I mentioned before.

Mr. Mellin: Your Honor, may I interpose an objection to this? This is going over Mr. Candido's testimony again. He went over all the advantages of the patent in exactly the same way. It seems to me it is cumulative and not proper rebuttal. There is no testimony as to what that system showed in the defendant's testimony. This is just repetition of Mr. [417] Candido's testimony and also Mr. Armstrong's testimony.

The Court: Of course, counsel, the plaintiff is entitled to show what the differences are now between the former systems as taught by the other patents and this.

Mr. Mellin: Yes, if you make comparison with the other patents.

The Court: He can't do it at one instant of time. I will overrule the objection.

The Witness: The second important feature of this invention is that it provides a more efficient

(Testimony of John E. Armstrong.)

low-pressure discharge, which for irrigation or low-pressure use results in increased capacities than anything heretofore obtainable. In some instances, your Honor——

The Court: I thought that you said that this is more of a high-pressure take-off.

The Witness: This is a high-pressure take-off. This one, your Honor, may be for low-pressure. It is sometimes placed on the bottom stage. In some cases they require a little higher pressure; in other words, to get water over a hill or overcome some friction in the pipe-line, to raise it up to this stage; and in some cases even higher, depending on the requirements of the consumer. But as illustrated in this type of system, it is a low-pressure discharge because it discharges at a pressure less than this.

Q. (By Mr. Bruce): When you say “this” you are referring to [418] the high-pressure discharge?

A. Yes, 57. We also sell this unit without the pressure tank on it. In other words, you have got, as it is shown on the drawing, a pressure system which accomplishes two things: It gives you a low-pressure discharge and a high-pressure discharge. Prior to this time the Rachel Jacuzzi patent taught that a low-pressure discharge could be taken from the suction line; in other words, we have increased the capacity from a given unit without the disadvantages that we have mentioned.

Third, the invention provides a pump unit which discharges at two pressures with one control sys-

(Testimony of John E. Armstrong.)

tem, one pressure switch. It takes the place of two systems. Formerly, a high-capacity pump was used for irrigation and for pressure system use the farmer bought another pump which was used in the pressure system, which has presented the disadvantage that in many instances the well is of such limited diameter that he could not get both sets of pipe in the well, necessitating the drilling of another well. In this system we take off a low-pressure discharge, serving the purpose of low-pressure irrigation pumps, and also at the same time take off a high-pressure discharge for his household requirements, making it a completely automatic system, regardless of which discharge is being used. It assures the housewife always has adequate water in the pressure system, and it is completely automatic and self-contained. It gives them a pump which we catalog now in [419] capacities delivered at or in excess of 200 gallons per minute for irrigation purposes from the low-pressure discharge, and we have on occasions built pumps with either greater capacity.

Q. Will you tell us what is new or unique in the water system of Exhibit 4, and you might bring that exhibit over onto the easel, Mr. Armstrong.

A. Patent No. 958, your Honor, embodies all of the points previously mentioned in 285, plus the additional advantage of being able to take off the water—In other words, this is a completely self-balancing pump and does not require a control valve

(Testimony of John E. Armstrong.)

in either of two discharges which we have. Some times we use it with one discharge, sometimes we use it with the other; sometimes we use it with both of them. But the fact that it is self-balancing, and it is made possible by all of the water from the stage of highest pressure being directed to the injector—Now, in some instances we have made these pumps with as many as 19 stages driving the injector for pumping depths from five to six hundred feet of water, with this construction and elimination of mechanical devices—in other words, the self-balancing feature for which this pump is designed has resulted in the elimination of countless man hours and miles of travel by ourselves, by our dealers, and our distributors to serve or adjust or readjust the control valve as the water level changed in the well, which so often happens. This pump, your Honor, is installed, primed by filling it completely [420] with water and the electric current is attached to it and that is all. It starts pumping and stays pumping. This pump and the feature of driving the jet with all the water from here has another important advantage.

Q. From “here” you mean the point of highest pressure?

A. Yes, to the point of highest pressure—has another extremely important advantage, which becomes apparent in extra deep settings, say three, four, five, or six hundred feet. Ordinarily, the motor operating a pump comes up to speed within a matter of, well, it is almost instantaneous—a fifth of a

(Testimony of John E. Armstrong.)

second or a second. But when you have three or four hundred feet of pipes down in the well, it takes a length of time for pressure to push on that to hold the momentum of the water in the pipes and to get that moving. Now, in the conventional system it discharges from the stage of highest pressure, the pressure in the tank drops, the pressure switch starts, starts the motor, and the pump starts rotating in about, we will say, half a second. Then it starts to pump water. The minute these impellers start rotating, they start pumping water, and they start discharging water from the point of highest pressure and out into the system. In the meantime the pressure that it developed by the control valve setting, which we have on a conventional system, is pushing on this big long column of water, trying to get it moving. But it is like pushing an automobile. It does not move right away, and it takes a [421] little time to get going. Consequently we have the pump pumping and no water being delivered by the injector to the pump. That results in the centrifugal pump of a conventional system discharging the water into the tank and none coming in to replace it. That results in loss of prime, your Honor, and stalling of the pump. In other words, as water comes in here and it is discharged—I wish I had a conventional system here—well, never mind, I can get by without it.

First, in a conventional system it is discharged from the point of highest pressure, and then pumping water out of the discharge, no water is coming

(Testimony of John E. Armstrong.)

in from the injector, and it causes the pump to pull in air or pull water—yes, this illustrates what I am talking about.

Q. Exhibit AJ-2.

A. All water from the impellers is pumped out through this control valve, and no water comes in from the injector to replace it. Consequently we have an empty space in here which is filled with water vapor, causing the pump to lose its prime and to cease pumping or to stall. When that happens you have to come out, remove a gauge or something, close the system off, reprime it, and start it again. In a conventional system, to overcome that on an extremely deep lift, you can overcome it by closing the control valve more. So that it restricts it. A little water may be discharged, but not enough to cause [422] stalling. And then as the pressure starts moving this long column of water in two or three seconds, after pushing two or three seconds this water starts coming from the injector and the pump is in operation. But then because we have closed the control valve, it does not discharge as much water. Now, in actual installations, and we have many of them, actually the consumer or someone had to go out, close this valve completely off, start the pump, and then open that valve and adjust it every time the pump was placed in operation. Now, it is impossible for that to occur in this type of system because the impeller which drives the jet, if it does not get any water from the well at all—

(Testimony of John E. Armstrong.)

Q. In referring to this time, you are referring to Exhibit 4, patent 958?

A. Yes—if it does not obtain, if this impeller does not obtain the water from the well because of the momentum from the pipes, it draws the additional water, which runs back through this line and into the impeller, and that additional quart or gallon of water is enough to drive the jet and place the pump in operation.

The Court: In that respect is it any different from the teaching of Exhibit 3?

A. The other one?

Q. The other patent.

A. Well, not when Exhibit 3 is discharging from only one discharge, [423] which could be located over here and discharging to a pressure tank.

Q. Exhibit 3 cannot be operated without a mechanical device?

A. From this discharge, yes, your Honor. This discharge does not require a mechanical device.

Q. You said that the main difference in the teaching of Exhibit 4 was that it eliminated the mechanical device; it saves on the time of adjustment, the people going out there to look at it?

A. That is right.

Q. But the description which you just gave a moment ago is equally applicable to Exhibit 3, is it not?

A. Not in that respect, when this discharge is on

(Testimony of John E. Armstrong.)

there.

Q. (By Mr. Bruce): This discharge being the high-pressure discharge?

A. The high-pressure discharge to the pressure system. Now, if that is removed and not used, then practically what we would be doing, your Honor, would be making Exhibit 3 into Exhibit 4, if we eliminated this control valve. Now, this control valve, here, in the automatic system, taking the place of two pumps, two complete pumping systems, an irrigation pump and a high-pressure pump, this valve plays a very important part in maintaining——

Q. Designate the valve.

A. This valve 83 in the low-pressure discharge plays a very important part in maintaining a proper balance of the system. [424] For example, we will say that the low-pressure discharge 81 is opened, placing the system in operation. Then due to the water level or the change in water level, the system reaches an equilibrium in the pressure tank, which maintains possibly only 20 pounds in the tank, and you want to maintain a minimum of 30 pounds in the tank. That is accomplished by adjusting this valve.

Q. Adjusting the valve?

A. The control valve in the low-pressure discharge, yes, the valve 83. It is not a control valve in the strict sense that it is required to maintain the system in operation. It is a trimming or a balancing valve. But this pump will operate without the necessity of the valve 83.

Q. Are you familiar with the structures and

(Testimony of John E. Armstrong.)

modes of operation of Defendant's Exhibits here in evidence, M through V? You have copies of those exhibits in your hand and the Hilliard patent 994, referred to in your deposition, and also here in evidence?

A. Yes.

Q. You are familiar with the structures there?

A. Yes.

Q. Do any of the devices described in any of these patents embody any of the features that you have told us are unique in Exhibits 3 and 4?

A. No. [425]

Q. Does a pump system in which you take off a low-pressure discharge from the suction line embody the same mode of operation as the one in which you take off a low-pressure discharge from an impeller stage?

A. Definitely not.

Q. Calling your attention to the drawing only in Exhibit N—you can refer to Exhibit N, that being the Veronesi patent 1927, and you can refer to Exhibit N-2, which is an enlargement—are you able from the face of the drawing as an engineer to determine the flow path of the fluid within the pump?

A. No.

Q. Is there any indication on the drawing showing any part of the flow path?

A. Yes.

Q. Would you point that out, please?

A. There is an indication that there is a discharge at this point directing the water downward in the pressure pipe to the injector. There is also an indication of flow in the injector upward at this point.

Q. Mr. Armstrong, may I interrupt? When you

(Testimony of John E. Armstrong.)

say "this point" it does not mean anything in the record. Will you start your answer again so it might be clear? You can refer to numerals on the drawing if you wish. Is there any indication on the drawing showing any part of the flow path? [426]

A. There is an indication of flow path down the pressure pipe 2, an indication of the flow path through suction line 3, and through the suction line 7 upward. There is also a discharge pointing outward from the pump X at the point 9.

Q. Is there anything on the drawing Exhibit N-2 which indicates to you how the water gets to discharge 9? A. No.

Q. With the aid of the specifications translated into English, can you determine the flow path of the fluid within the pump? A. Yes.

Q. Directing your attention to Defendant's Exhibit Z, does that illustration accurately show the flow path of the fluid in accordance with the drawings and specifications of the Veronesi patent?

A. No.

Q. Directing your attention to Plaintiff's Exhibit 21, does that accurately show the flow path of the fluid within the pump? A. Yes.

Q. Without asking you to trace the flow path, does Plaintiff's Exhibit 21 indicate by arrows the flow path as taught by the drawing in the specifications of the Veronesi patent? A. Yes.

Q. You are familiar with the bulletins introduced here yesterday, Nos. AG and AH, are you, Mr. Armstrong?

(Testimony of John E. Armstrong.)

A. Well, I would like to see them again. I can't remember. [427]

Q. Maybe we had better have the original exhibits (handing documents to the witness). You have read the translation of the bulletin, haven't you? A. Yes.

Q. One of them? I will ask you, then, after you have checked them, do the bulletins Exhibits AG and AH, illustrating, pertaining to the Veronesi pump, show the flow path of fluid within the pumps there illustrated or described?

A. No, they do not. [427-a]

Q. Then, from your testimony, I take it, that neither the Veronesi patent, the specifications or the patents, indicate anything but a conventional multi-stage jet pump as illustrated in the Frank Jacuzzi patent you mentioned here, referred to a while ago, is that correct?

A. May I have that question again?

(Question read.)

A. That is correct.

Q. (By Mr. Bruce): Exhibit AJ-2. Now, I take it that as an engineer, it is not your contention or you do not contend that with reference to the illustration of the Veronesi patent, while that portion of the casing through which the bolt excess passes, seals the entire opening of the discharge 9.

Mr. Mellin: Just a moment. I object to that as

(Testimony of John E. Armstrong.)

impeaching their own witness Granberg. He said it did.

Mr. Bruce: He certainly did not.

Mr. Mellin: The record speaks for itself.

The Witness: May I have the question again?

The Court: I will allow it.

(Question read.)

A. No, there must be a way to get the water to that.

Q. (By Mr. Bruce): But from the face of the drawing N-2, it is not shown now that is done?

A. That is correct.

Q. As an engineer, are there various means, various pump [428] structures in which a discharge is taken which is not located over any particular stage?

A. Yes, that is correct. As an illustration of that, I have a bulletin of the Berkeley Pump Company, which takes the discharge out from a point which is not aligned with any stage. Although it is in the middle of the casing, it is still the point of discharge of highest pressure.

The Court: I am going to allow you to have the rest of the morning in this case, so we can finish it.

Mr. Bruce: We are almost through.

Mr. Mellin: I want to cross-examine, Your Honor.

The Court: It would be better if I bring this jury back so you won't rush.

(Testimony of John E. Armstrong.)

(Thereupon, the Court took up another matter with counsel, after which testimony in the instant case was resumed, as follows:)

Mr. Bruce: We would offer in evidence as illustrative of the witness' testimony the Berekley catalogue to which he has just referred, as our exhibit next in number.

(The catalogue referred to was thereupon received in evidence and marked Plaintiff's Exhibit No. 22.)

Q. (By Mr. Bruce): Mr. Armstrong, I do not know whether I have asked you this, but without tracing the flow path on that drawing, Exhibit 11,——

Mr. Mellin: 21.

Q. (By Mr. Bruce): ——21, do the arrows indicate the flow path [429] as taught by the drawings and specifications of the Veronesi patent?

A. Yes, it does.

Mr. Mellin: I object to that as being asked and answered.

The Court: He said that one did, the other one did not.

Mr. Bruce: I was not sure whether I had asked that question.

Q. Referring to Exhibit 3, if you remove the control valve 59, can you rely on the back pressure from the pressure tank to perform the function of a control valve?

(Testimony of John E. Armstrong.)

A. No. The reason for that is that while the pressure switch setting might be maintained at a high point so that it normally would be sufficient to maintain enough back pressure to operate the jet, you can't depend on that because on the discharge of the tank there are generally many outlets, several in the house, kitchen faucets, in the bathrooms, some in the yard, and assuming somebody is taking a shower, somebody is washing a car, and somebody is doing the laundry, it is possible to draw more water from the pressure tank than the pump will deliver, in which case the pressure keeps going down and down, because the pump is not keeping up with the requirements, until such a point that the pressure in the tank has been reduced to a point below that necessary to operate the injector, and we have loss of prime or stalling of the system.

Mr. Bruce: Your witness, Mr. Mellin. [430]

Cross-Examination

By Mr. Mellin:

Q. Mr. Armstrong, did you make this drawing, 21? A. No.

Q. Made under your supervision? A. Yes.

Q. As a matter of fact, isn't it true, Mr. Armstrong, that you have entirely changed the internal construction of the pump in order to make it operate in the fashion that you say is so in Exhibit 21?

A. It was made in accordance with the teachings of the specifications.

(Testimony of John E. Armstrong.)

Q. In other words, it illustrates, however, a construction entirely different from the actual construction illustrated in N-2 as far as the section part is concerned, isn't that so? A. No.

Q. Isn't it a fact, Mr. Armstrong, you have had to add in N-2 an internal wall separator from the bottom of the boss shown in Exhibit N-2?

A. No.

Q. I show you the exhibit.

A. Well, it may appear on there. It would not be necessary. I believe this wall would tend to contact that boss.

Q. If it contacts it, wouldn't it form a seal to keep the water from going over it? [431]

A. No, not from this annular chamber here. The water comes down around this bolt on both sides in an annular passage.

Q. That is not the way the drawing shows it. Don't you see an arrow going underneath the boss?

A. That arrow is on the back of the boss.

Q. What do I see in front of the boss?

A. I told you it passed on both sides. It passes in front of the boss, down one chamber, from this annular chamber and back of the boss on the other side and up and around and over this boss and out the discharge.

Q. Anywhere in Exhibit N, do you find any such flat wall such as I am indicating on Exhibit 21 as A?

A. That is a section, yes. It is represented over here on this other drawing.

(Testimony of John E. Armstrong.)

Q. Let us get this section correct. I will label another section B. Isn't the section I am pointing to here—and I am marking it little b, isn't that the section B in this drawing?

A. What was the question, please?

Q. Isn't the section b in both drawings the same section?

Mr. Gray: Mr. Mellin, may I make this suggestion to you, if you will pardon me. You want to be careful because you are using a b here and you already have a B.

Mr. Mellin: Little b in both drawings.

Q. Isn't that the same section, Mr. Armstrong?

A. I believe it could be. [432]

Q. In fact, the drawings show them to be the same, N-2 and 21? A. Yes.

Q. Below the section b in 21, we have another annular wall, which I have labeled a, isn't that so, and you will notice that there are separate parts on the drawing?

A. I do not think that it is necessary——

Q. I am not asking whether it is necessary; is it shown on the drawing or not? That is all I am asking.

A. It is shown on the drawing.

Q. In Exhibit 21, and you do not find that section in N-2, do you, that separate inner wall that you have on 21?

A. The point that I was trying to make was that this does not necessarily indicate that there are two separate pieces.

(Testimony of John E. Armstrong.)

Q. It illustrates it that way; to you as a draftsman it illustrates it in that fashion, doesn't it?

A. Now that you call my attention to it, it is possible it is caused by not proper shade lines by the draftsman.

Q. So there isn't any such wall, a, as shown in Exhibit 21 in N-2, is there?

A. Well, a and b could be the same wall in this case here.

Q. But they are not shown as the same wall in 21, are they? You said they contacted the boss in the bottom a moment ago and that is the way it is illustrated?

A. That is right.

Q. So to that extent, in order to make the drawing 21, you had to [433] violate the construction shown in N-2 right on the very face of the drawing, didn't you?

A. It would appear that way.

Q. So that your testimony that 21 is an accurate illustration of the Italian patent N-2 is entirely erroneous, isn't that so, to that extent?

A. To that extent, yes.

Q. As a matter of fact, Mr. Armstrong, this drawing, No. 21, is completely deceptive as far as the illustration of the structure shown in the Italian patent N-2 is concerned, to that extent, isn't it?

A. To that extent. It reads on the specifications, though.

Q. I am talking about the drawing, what is shown in the drawing, and it was necessary in order to get the passageway that you were referring to,

(Testimony of John E. Armstrong.)

to bring up the water to the first outlet, that you had to reconstruct the pump and make a structure not shown in N-2 in order to accomplish it, isn't that the fact?

A. As I mentioned, that drawing may appear to be in error. It is not necessarily because of the fact that this line that he has drawn through here to try and show that boss does not necessarily mark a means of division between this boss and this part.

Q. It actually shows a division in ordinary drafting parlance, doesn't it?

A. No, that is brought over and shown in a separate broken [434] section, to show that passage.

Q. Let us draw it, Mr. Armstrong. You have little b on the drawing I am making, which corresponds to the section b on N-2; that is correct, isn't it?

A. Yes.

Q. And this line which I am marking B-1 is the bottom of the boss, isn't that correct?

A. Yes.

Q. You see the bottom of the boss in here, don't you?

A. It shows round at that point.

Q. And you said they contacted?

A. They should either be contacted or in one piece.

Q. It is shown as a contact.

A. I do not believe it is intended to show contact.

Q. But it does.

A. It is not necessarily interpreted that way.

Q. In A you have a separate section, which I am

(Testimony of John E. Armstrong.)

marking C, which corresponds to the section a in 21, isn't that so?

A. That is your interpretation of the drawing 21.

Q. Doesn't 21 clearly show it, Mr. Armstrong?

A. No, sir. Do you want me to draw it for you, how it could show it?

Q. How it could show it. I would like you to demonstrate on 21, too.

A. This is what that drawing is intended to convey. Now, the [435] section is broken through here, and then runs over to here to show a portion of this passageway which comes from the annular chamber back to the discharge.

Q. You actually show a line at the bottom of that boss which you said they contact?

A. Well, it would show a line.

Q. So you would have to add not only the ordinary thickness of half the boss, but you have to then add another wall, don't you?

A. No, I didn't add any other wall. I am telling you that is a shade line to show you that is round and also to show this passage which comes from the annular end.

Q. You heard Dr. Folsom's explanation of what he said the drawing N-2 illustrated to him?

A. Yes.

Q. And you have in mind how Dr. Folsom said the centrifugal pump N-2 operated. You recall that?

A. I don't recall his exact testimony. I know the general gist of it.

(Testimony of John E. Armstrong.)

Q. In other words, he testified, as I understood it, this drawing indicated to him there was a discharge from the first stage out through the line; do you recall that? A. Yes.

Q. And there was a discharge of the last stage out through 5. A. Yes. [436]

Q. And you agree with the latter part of it, that there is a discharge from the last stage out through 5? A. Yes.

Q. Just taking the centrifugal pump by itself, leaving all its installation off, that is a normal, old-fashioned two discharge pump, such as Mr. Granberg testified yesterday was at least 15 or 20 years old, to his knowledge?

A. Yes, Mr. Granberg also testified that they make pumps which discharge at the same pressure with more than one discharge.

Q. Yes, I understand that. And the pump he testified was a one-stage pump and this is not.

A. There are multiple stage pumps with more than one discharge.

Q. Assuming the doctor's statement was correct, just for an assumption, then the centrifugal pump shown by the Italian patent N-2 was a normal conventional, old-fashioned multi-stage pump with selective discharge?

A. May I have that question?

(Question read.)

Mr. Gray: Just a moment, if the Court please.

(Testimony of John E. Armstrong.)

I think the question is confusing. Assuming the doctor's statement is correct. Which statement? We have discussed several statements.

Mr. Mellin: The doctor's explanation of the operation [437] of the centrifugal pump, itself.

Mr. Gray: The entire operation?

Mr. Mellin: Of the centrifugal pump, yes, the entire operation.

The Witness: I forget what the question was.

Mr. Mellin: I will reframe the question.

Mr. Gray: If the Court please, I think we should interpose this objection——

The Court: Counsel is going to reframe the question.

Mr. Gray: I think he should ask the witness rather than ask the witness to remember what the doctor said.

Q. (By Mr. Mellin): Assuming, Mr. Armstrong, that the centrifugal pump shown in N-2 has the discharge 9 which discharges solely from the first stage—you understand that—from the last stage through discharge 5, then it would correspond with the conventional multi-stage pump with a low-pressure and a high-pressure discharge?

A. Yes, if you assume that and neglect the injector.

Q. That is correct, neglect the injector, just the pump; and you agree with Mr. Granberg that pumps of that type are extremely old? A. Yes.

Q. Then assuming that the pump in N-2 is the

(Testimony of John E. Armstrong.)

conventional two-discharge pump with a low-pressure discharge from the first stage and a high-pressure discharge from the last stage, would [438] there be any difference in the pumping system shown in N-2 than shown in Exhibit 5 representing the Berkeley pump system? A. Yes.

Mr. Bruce: Just a moment.

Mr. Gray: It is a hypothetical question. Is Exhibit 5 a complete system? Let us look at it.

Mr. Mellin: As I recall it. I heard the testimony four times with respect to it. I should know it by now.

Mr. Gray: I think you should show the witness the exhibit. We have 50 or 60 exhibits here.

The Witness: This is it, here. May I have the question?

(Question read.)

A. Yes. N-2 is not a complete pump system, for one thing.

Q. (By Mr. Mellin): In other words, I will have to eliminate the tank and the valve connection and the low-pressure discharge in Exhibit 5. Let us take just the centrifugal pump in both instances and just the jet connected together. They would be the same, wouldn't they?

A. You mean assuming that that does discharge from the first——

Q. That is correct, yes, with that assumption.

A. Yes, they would be the same, except, of

(Testimony of John E. Armstrong.)

course, one probably is presumed to be a three-stage pump, and this is shown as a two-stage pump.

Q. That would not make any difference in the mode of operation, however, would it? [439]

A. No.

Q. Does it make any difference that the Italian patent N-2 shows the pump horizontally disposed, rather than vertically disposed in the mode of operation? A. No.

Mr. Mellin: That is all. May I offer the sketch made by the witness and counsel as next in order?

Mr. Gray: If you do that, Counsel, would you designate that exhibit that you made?

Mr. Mellin: I will withdraw the offer, your Honor.

Mr. Gray: It is very confusing to put it in that way.

Mr. Mellin: I will withdraw the offer. I am not proud of my artistic efforts.

Mr. Gray: Your Honor, may we have a five-minute recess at this time?

The Court: Very well.

(Recess.) [440]

Mr. Mellin: If Your Honor please, may I ask the witness one more question? I overlooked something.

Q. I refer to plaintiff's Exhibit 19, which is the Carpenter patent on a high-low pressure pumping system, and I ask you if you understand the operation of the system shown in that exhibit.

(Testimony of John E. Armstrong.)

A. Yes.

Q. Now, as a matter of fact, that pumping system is for deep wells? A. Yes.

Q. And as a matter of fact, that system shows a low pressure discharge of high volume for irrigation, doesn't it? A. Yes.

Q. And it shows a high pressure takeoff to a pressure tank for household use?

A. Yes, sir.

Q. And it shows also the last centrifugal stage, if you wish to call it that, going directly to the tank, isn't that correct? A. That's correct.

Q. So that there you have in one system a low pressure high volume pumping for irrigation, and a low volume high pressure system for a tank, all in one system?

A. Yes, but it is not automatic, because there is a check valve in there.

Q. Yes.

Mr. Mellin: That is all. [441]

Redirect Examination

By Mr. Bruce:

Q. And that Carpenter patent also does not relate to an injector type system?

A. That's correct.

Q. It is a turbine type, isn't it? A. Yes.

Q. And in the use of an injector type system, many different problems—you are concerned with very different problems in your systems?

(Testimony of John E. Armstrong.)

A. Yes.

Q. Now, you made a sketch here and I am going to ask that that be——

Mr. Bruce: We will introduce the sketch you made in evidence as our exhibit next in number.

The Witness: Better show which is mine and which is his.

Mr. Bruce: Well, we will designate the sketch—let's designate the sketch which Mr. Mellin made as Figure 1, and the sketch which you made, with the two lines here, as Figure 2; embracing the two figures.

(Whereupon Figure 2 on diagram referred to above was received in evidence and marked Plaintiff's Exhibit No. 23.)

Q. (By Mr. Bruce): Now, Mr. Armstrong, assuming that the Veronesi pump is illustrated in Exhibit J and operates according to the defendant's interpretation, as defendant contends, does it embody all the features you have testified to as being new [442] and unique? A. No.

Q. In your systems? A. No.

Mr. Bruce: That is all.

Mr. Mellin: No further questions, Your Honor.

The Court: Mr. Armstrong, I suppose that the manufacturers of pumps in the United States have been, just as those engaged in the manufacture of other mechanical equipment, steadily attempting to improve the means of pumping water for household and irrigation purposes from wells?

(Testimony of John E. Armstrong.)

A. That's right.

Q. After all, you have all been engaged in that work for a number of years—that is, all who are engaged in the manufacture of pumps and pressure pumping systems.

A. Yes, sir.

Q. Now, as to the pump, the latest development that you have which you refer to in your catalogues which you consider to be a considerable improvement over present methods—do you?

A. That's correct.

Q. —and from time to time you still endeavor to find various mechanical means of improving the means of pumping so as to make pumps more serviceable for both household and irrigation purposes?

A. That's correct. [443]

Q. Now, these pumps that are illustrated in the drawings commencing with No. 5, or the exhibits commencing with No. 5 that you prepared with respect to defendant's pumps, they are not pumps that are used for deep installations, are they?

A. Well, defendant's pumps, from what I know of their catalogue, they recommend standard pumps down to around 120 or 150 feet. We offer a comparable line to 120 to 150 feet, and then we go up and go deeper and make a more complete line, possibly, than they do. But I don't know whether I am answering the question. But this pump and our pump are competitive pumps. Is that what you meant?

Q. That is what I am trying to find out in a way, yes.

A. Yes.

(Testimony of John E. Armstrong.)

Q. Except that I understood from something you said or some other witness said that these particular pumps were more of a shallow well type pump, leaving out the form in which they were described in these exhibits?

A. Well, no, Your Honor; a shallow well pump, as we understand it in the industry, is restricted to a depth of approximately 20 to 25 feet. These pumps are sold as shallow well pumps, and then later converted to deep well pumps or converted in the dealer's stock or at the factory by the addition of the injector for greater pumping depth down to 120 or 150 feet. Or in our case, even deeper.

Q. Now, you say that a device that may be constructed according [444] to the teaching of Exhibits 3 and 4, the two patents in suit, is an improvement in certain respects over the pumping pressure systems, pressure pumping systems that have previously been in use? A. Yes.

Q. According to the way you had theretofore made pumps? A. Yes.

Q. Now, how extensive is that improvement? What does it mean, what does the improvement mean in so far as it benefits the farmer?

A. It means more water for less money.

Q. And why is it more water for less money?

A. Because the pump is more efficient than anything heretofore existing, particularly with reference to the low pressure discharge that is taken for irrigation, where the volume of water that is

(Testimony of John E. Armstrong.)

pumped in relation to the power bill is an important consideration.

Q. Well, now, let's suppose that I have a farm of moderate size and I ask you to install one of your pumps, constructed according to the teaching of these patents. I have heretofore had the latest type of pump up to that time, and let's say I have a hundred acre farm and I have a reasonable amount of it in acreage that needs irrigation. Now, what would be the practical benefit to me in dollars and cents? I am not asking you to estimate it with any great precision, but how substantial would that be to me as a farmer to have that?

A. Well, that would result in possibly a reduction in a power bill of from 30 to 50 per cent over the existing type of pumps.

Q. What other benefit would he get from it?

A. He would get a saving on maintenance and adjustments. The control valve is quite an important item. There has been a lot of work done on them. We use a fixed control valve, others use what they call an automatic control valve. But they all go out of adjustment, either due to change in water level in our case primarily, or mechanical failure of moving parts, diaphragms and springs in the case of the automatic control valve. That means that when you get ready to water the chickens or the livestock, you open the faucet and no water comes out. Then it is a question of trying to phone the pump dealer and getting him to send out a man,

(Testimony of John E. Armstrong.)

and/or getting in the pickup and loading up a bunch of milk cans and going over to your neighbor's to get some water.

Q. Well, now, you say in the catalogue that you have put out—I noticed in looking at it the other day that it says that this is a revolutionary procedure, is being so designated in your catalogue. Now, before I ask you that, did I understand you to say that you are a mechanical engineer?

A. Yes, I am a professional mechanical engineer for the State of California.

Q. Why could not this be designated as an improvement in some [446] means of pumping rather than a revolutionary device? I don't want to embarrass you too much by asking that question, but is that intended to be an engineer's statement or a salesman's statement in the catalogue?

A. Well, we felt that it was quite an extensive improvement, and it may be a little bit optimistic and on the salesmanship side. In other words, they are still jet pumps.

The Court: That is all I had. If my questions prompt any questions on the part of counsel, don't hesitate to ask the witness.

Mr. Bruce: I don't believe they call for any further questions so far as I am concerned.

The Court: Well, are you through with the witness?

Mr. Mellin: No further questions.

The Court: All right.

Mr. Bruce: Now, Your Honor, before we rest we want to introduce into evidence plaintiff's interrogatories and defendant's answers thereto.

The Court: Very well.

Mr. Bruce: We will reopen the case for that purpose.

Now, if Your Honor please, as you can see in connection with the Varonesi patent, there are a number of—the Varonesi patent disclosures raise some problems. We think that the Veronesi disclosure is, even if it were accepted in full—it [447] needs no interpretation. It still doesn't dispose of the two inventive features.

Mr. Mellin: Are we arguing the case?

Mr. Bruce: To that matter. And I would suggest that we have the matter submitted on briefs, because it becomes very involved.

The Court: Well, is the evidence all finished now on both sides?

Mr. Mellin: Yes.

Mr. Bruce: Yes, Your Honor.

The Court: All right.

(Whereupon, following discussion among Court and counsel, the matter was submitted upon the filing of briefs, 45, 45 and 15.)

[Endorsed]: Filed September 7, 1949. [448]

[Title of District Court and Cause.]

CERTIFICATE OF CLERK TO
RECORD ON APPEAL

I, C. W. Calbreath, Clerk of the District Court of the United States for the Northern District of California, do hereby certify that the foregoing and accompanying documents and Exhibits, listed below, are the originals filed in this Court, in the above-entitled case, and that they constitute the Record on Appeal herein, as designated by the Appellant, to wit:

Complaint.

Answer to Complaint and Counterclaim for Declaratory Relief and Injunction.

Motion and Notice of Motion for Order to Answer Cross-Complaint and for Reasonable Attorneys' Fees.

Answer to Counterclaim.

Defendants' Answer to Plaintiff's Oral Interrogatory.

Plaintiff's Interrogatories and Answers to Plaintiff's Interrogatories.

Stipulation Re Defendants' Pumps and Pump Systems.

Memorandum Decision.

Defendants' and Counterclaimant's Proposed

Findings of Fact and Conclusions of Law.

Judgment.

Motion and Notice of Motion to Amend Findings.

Notice of Appeal.

Designation of Contents of Record on Appeal.

Order Amending Findings of Fact and Conclusions of Law.

Reporter's Transcripts—Vol. 1 for May 11, 1949; Vol. 2 for May 12, 1949; Vol. 3 for May 13, 1949; Vol. 4 for May 16, 1949; Vol. 5 for May 17, 1949.

Plaintiffs' Exhibits Nos. 1, 2, 3, 4, 5, 6, 7, 7-a, 8, 8-a, 9, 9-a, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23.

Defendants' Exhibits Nos. A, B, C, D, E, F, G, H, I, J, K, L, M, M-1, M-2, N, N-1, N-2, O, P, Q, R, S, T, U, U-1, U-2, V, V-1, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ-1, AJ-2, AJ-3, AJ-4, AJ-5 and AJ-6.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said District Court this 6th day of May, A.D. 1950.

C. W. CALBREATH,
Clerk.

By /s/ M. E. VAN BUREN,
Deputy Clerk.

[Endorsed]: No. 12540. United States Court of Appeals for the Ninth Circuit. Jacuzzi Bros., Incorporated, a Corporation, Appellant vs. Berkeley Pump Company, a Corporation, Berkeley Pump Company, a Partnership, and Fred A. Carpenter, Lana L. Carpenter, F. F. Stadelhofer, Estelle E. Stadelhofer, Jack L. Chambers, Wynnie T. Chambers, Clemens W. Laufenberg and Marie C. Laufenberg, Partners Associated in Business Under the Fictitious Name and Style of Berkeley Pump Company, Appellees. Transcript of Record. Appeal from the United States District Court for the Northern District of California, Southern Division.

Filed May 8, 1950.

/s/ PAUL P. O'BRIEN,

Clerk of the United States Court of Appeals for
the Ninth Circuit.

In the United States Court of Appeals
for the Ninth Circuit

No. 12,540

JACUZZI BROS., INCORPORATED, a
Corporation,

Appellant,

vs.

BERKELEY PUMP COMPANY, a Corporation,
BERKELEY PUMP COMPANY, a Partner-
ship, and FRED A. CARPENTER, LANA L.
CARPENTER, F. F. STADELHOFFER,
ESTELLE E. STADELHOFFER, JACK L.
CHAMBERS, WYNNIE T. CHAMBERS,
CLEMENS W. LAUFENBERG and MARIE
C. LAUFENBERG, Partners Associated in
Business Under the Fictitious Name and Style
of Berkeley Pump Company,

Appellees.

APPELLANT'S STATEMENT
OF POINTS ON APPEAL

The above-named appellant, pursuant to Rule 19, Paragraph 6, of the Rules of this Court, hereby makes the following statement of points asserted as errors and on which it intends to rely in the prosecution of its appeal herein, and asserts that the trial Court erred in each of the following respects:

1. In finding and concluding that United States Letters Patent No. 2,344,958 and each of the claims thereof are invalid and void in law;

2. In finding that said Letters Patent No. 2,344,958 fails to disclose and claim an invention patentable over the prior art and is invalid for want of invention;

3. In finding that Claims Nos. 1, 2 and 4 through 9 of said patent No. 2,344,958 are so broad that they define no invention and are invalid;

4. In finding that the system disclosed in Claims Nos. 1, 2 and 4 through 9 of said patent No. 2,344,958 is the precise system disclosed in the Veronesi Italian Patent No. 260,417;

5. In finding that said patent No. 2,344,958 and any or all of the claims thereof are anticipated by any other prior art patents, use or publication;

6. In finding and concluding that United States Letters Patent No. 2,424,285 and each of the claims thereof are invalid and void in law;

7. In finding that said Letters Patent No. 2,424,285 fails to disclose and claim an invention patentable over the prior art and is invalid for want of invention;

8. In finding that Claims Nos. 3, 9 to 14, 17 and 18 of said patent No. 2,424,285 are so broad that they define no invention and are invalid;

9. In finding that Claim No. 11 of said patent No. 2,424,285 is fully anticipated by the Schmid British Patent No. 382,592;

10. In finding that said patent No. 2,424,285 and any or all of the claims thereof are anticipated by any other prior art patents, use, or publication;

11. In finding that Claim No. 11 of said patent No. 2,424,285 has not been infringed by defendants;

12. In finding that Claim No. 13 of said patent No. 2,424,285 in substance is identical with those claims in said patent No. 2,344,958 which do not specify that the discharge opening is valve free;

13. In not finding and concluding that said patents Nos. 2,424,285 and 2,344,958, and each of them, and each and all of the claims of each of said patents, are valid;

14. In admitting in evidence Italian Patent No. 139,161, defendants' Exhibit M, and all testimony and evidence relating thereto;

15. In admitting in evidence testimony and other evidence relating to prior foreign manufacture, use, sale and publication of the structure or system purportedly disclosed in Italian Patent No. 260,417, defendants' Exhibit N;

16. In dismissing plaintiff's complaint;

17. In rendering judgment for defendants and defendant counterclaimant and awarding them their costs of suit.

Dated: May 11, 1950.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Appellant.

Affidavit of Service by Mail attached.

[Endorsed]: Filed May 12, 1950.

[Title of District Court and Cause.]

DESIGNATION OF ALL OF THE RECORD
MATERIAL TO THE CONSIDERATION
OF THE APPEAL HEREIN

Notice Is Hereby Given that the plaintiff and appellant, Jacuzzi Bros., Incorporated, a corporation, does hereby designate all of the record which is material to the consideration of the appeal herein as follows:

1. Complaint.
2. Answer to Complaint and Counterclaim for Declaratory Relief and Injunction.
3. Answer to Counterclaim.
4. All interrogatories and answers thereto.
5. Stipulation as to use of printed copies of patents.
6. Stipulation admitting manufacture and sale by defendant of alleged infringing devices.
7. All evidence received during the trial, including the testimony of all witnesses, all stipulations or admissions of counsel, all writings and other exhibits received in evidence, all motions, applications and objections to the introduction of evidence made during the trial and the rulings thereon.
8. Memorandum Decision filed in the District Court on February 23, 1950.

9. Findings of Fact and Conclusions of Law.
10. Order Amending Findings of Fact and Conclusions of Law.
11. Judgment.
12. Notice of Appeal.
13. Supersedeas and Costs Bond.
14. Designation of Contents of Record on Appeal filed in the District Court.
15. This Designation of all of the Record Material to the Consideration of the Appeal Herein.
16. Appellant's Statement of Points on Appeal.
17. All other records referred to or required by the provisions of Rule 75, Subdivision (g), of the Federal Rules of Civil Procedure.

Dated: May 11, 1950.

/s/ CHAS. O. BRUCE,

/s/ NATHAN G. GRAY,

Attorneys for Plaintiff and
Appellant.

Affidavit of Service by Mail attached.

[Endorsed]: Filed May 12, 1950.